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COMMERCE Magazine

How's Your Conversation?

Overweight Executives

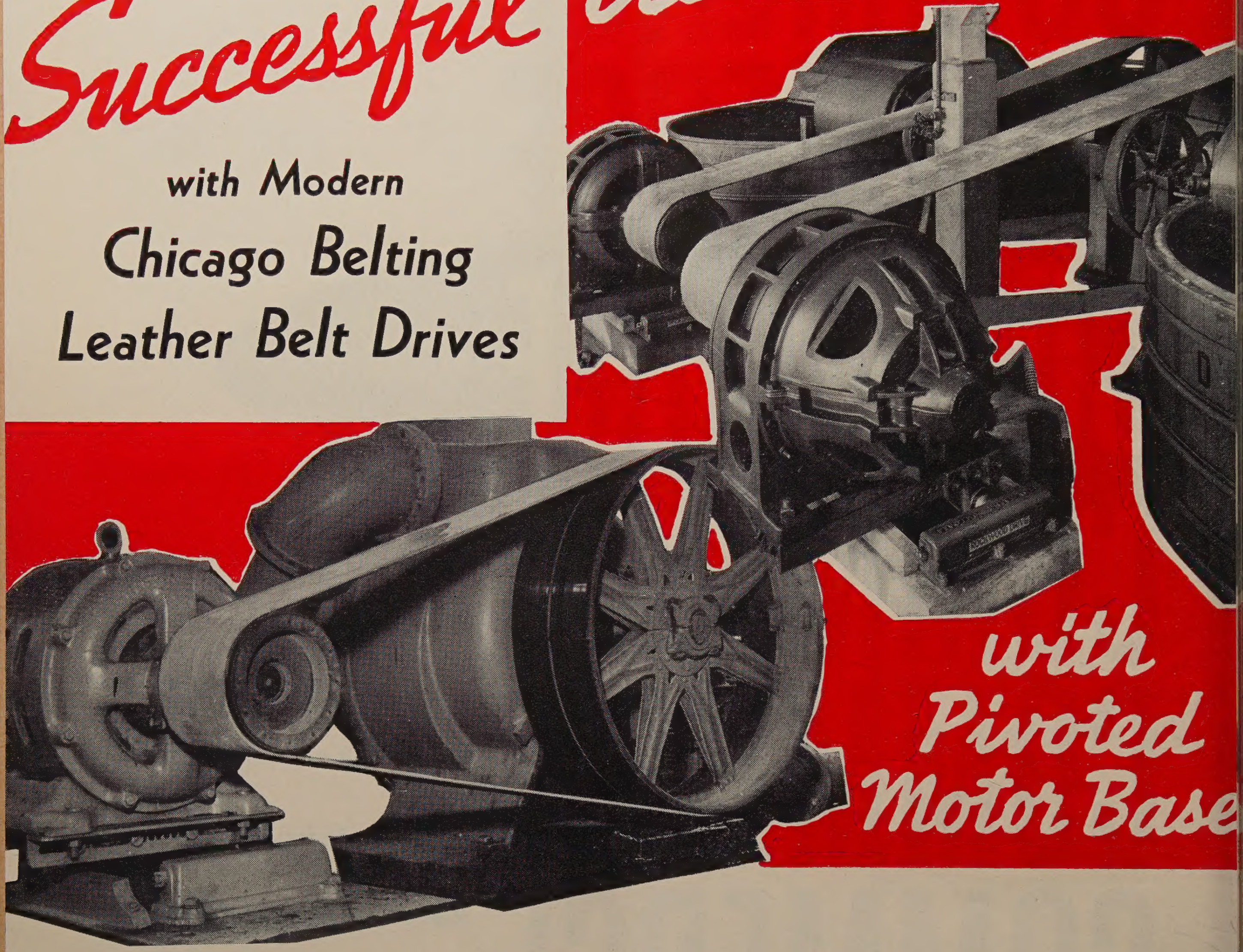
Save Those Engineers!

Reinforced Plastics

Chicago's Mountaineers

Visit An Atom Hospital

May, 1953 • 35c

"Successful Achievement

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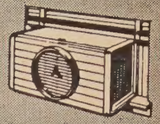

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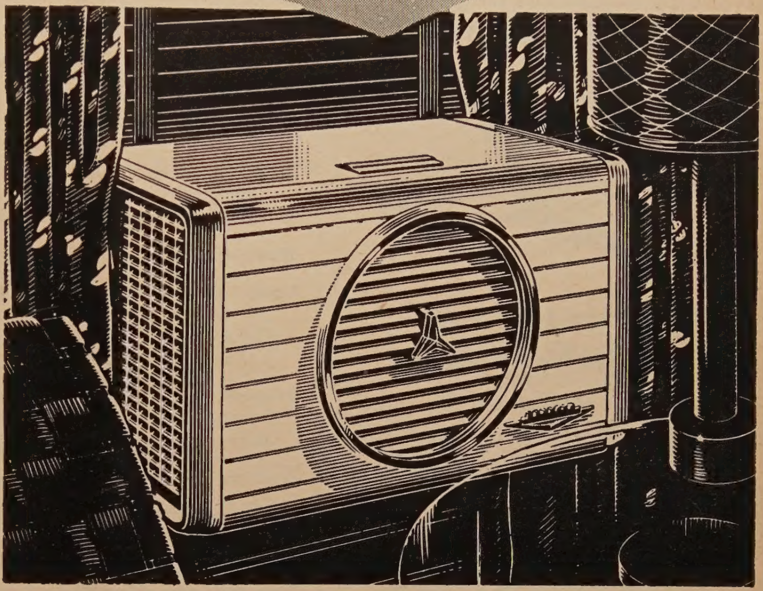

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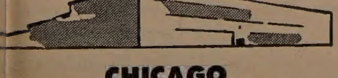

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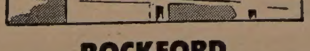

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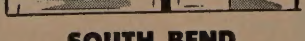

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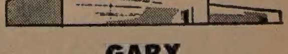

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UNITED AIR LINES

statistics of . . .

Chicago Business

	March 1953	Feb. 1953	March 195
Building permits	883	1,014	1,39
Cost	$ 14,144,100	$ 14,832,800	$ 15,904,00
Contracts awarded on building projects, Cook County	2,434	1,490	1,60
Cost	$ 52,178,000	$ 28,785,000	$ 44,191,00
(F. W. Dodge Corp.)			
Real estate transfers	6,931	5,164	6,12
Consideration	$ 5,066,580	$ 3,607,194	$ 5,708,60
Department store sales index (Federal Reserve Board) (Daily average 1947-49=100)	93.7	83.5	85.
Bank clearings	$ 4,283,134,992	$ 3,491,590,606	$ 3,689,422,32
Bank debits to individual accounts:			
7th Federal Reserve District	$24,966,000,000	$19,536,712,000	$21,396,849,00
Chicago only	$13,165,564,000	$ 9,492,579,000	$11,575,227,00
(Federal Reserve Board)			
Midwest Stock Exchange transactions:			
Number of shares traded	1,577,776	1,259,290	1,171,00
Market value of shares traded	$ 47,570,661	$ 39,616,217	$ 39,475,08
Railway express shipments, Chicago area	1,136,302	1,017,760	1,076,90
Air express shipments, Chicago area	65,355	59,332	58,34
L.C.L. merchandise cars	19,585	17,648	18,40
Industrial gas sales, therms	16,155,583	15,576,174	13,749,37
Revenue passengers carried by Chicago Transit Authority lines:			
Surface division	44,363,896	39,918,460	45,983,35
Rapid transit division	12,162,227	10,948,387	13,327,91
Boulevard system	6,381,475	5,843,950	6,997,39
Postal receipts	$ 11,630,993	$ 10,040,115	$ 10,769,71
Air Passengers:			
Arrivals	243,046	212,076	191,64
Departures	250,236	222,834	199,96
Consumers' Price Index (1947-49=100)	113.8	113.9	113.
Receipts of salable livestock	437,102	399,464	416,46

---

*Preliminary figure.

June, 1953, Tax Calendar

Date Due	Tax	Returnable to
1	File Illinois Capital Stock Tax Return	Director of Revenue (Ill.)
15	If total O.A.B. taxes (employer and employe) plus income tax withheld in previous month exceeds $100, pay amount to	Authorized Depositar
15	Payment of one-quarter of 1953 estimated tax found due March 15 by individuals. (Those required to file declaration for first time, or making revised declaration, pay one-third of the balance of 1953 estimated tax)	Director of Internal Revenue
15	Illinois Retailers' Occupational Tax return and payment for month of May	Director of Revenue (Ill.)
15	Second installment (40%) of 1952 Federal Income Tax by Corporations	Director of Internal Revenue
15	Payment of Federal Income Tax withheld at source	Director of Internal Revenue
30	Federal Excise Tax return and payment due for May, 1953.	Director of Internal Revenue

COMMERCE

Magazine

Published since 1904 . . . by the
Chicago Association of Commerce
and Industry • 1 North La Salle St.,
Chicago 2, Ill. • Franklin 2-7700

May, 1953

Volume 50

Number 4

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Alan Sturdy, Editor • Gordon Rice, Advertising Manager • Lewis A. Riley, Associate Editor

Published monthly by The Chicago Association of Commerce and Industry, with offices at James and North Cook Streets, Barrington, Ill., and 1 North LaSalle Street, Chicago 2, Ill. Subscription rates: domestic $3.50 a year; three years $7.50; foreign $4.50 a year; single copies 35 cents. Reentered as second class matter June 2, 1948, at the Post Office at Barrington, Ill., under the act of March 3, 1879. Copyright 1953, by the Chicago Association of Commerce and Industry. Reprint permission on request. Executive and Editorial Offices: 1 North LaSalle St., Chicago, Telephone Franklin 2-7700. Night Telephone: Editorial, Franklin 2-7717; Advertising, Franklin 2-7711. Neither Commerce nor The Chicago Association of Commerce and Industry sponsors or is committed to the views expressed by authors. Cover design copyrighted.

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in this issue...

A great deal has been written and said about the nation's shortage of engineering talent, as well as the fact that this shortage is not likely to improve for some years to come. We are simply not training enough engineers to accommodate the needs of an increasingly technical world. There is, however, another way to attack this critical scarcity, and that is to conserve the engineers we do have. This month George M. Muschamp of Minneapolis - Honeywell's Brown Instrument Division outlines (p. 13) a realistic program for keeping engineers on engineering work and not on routine duties and red tape. It is thoughtful reading for the executive who believes he can't possibly fill his engineering requirements.

• • •

Businessmen are interested in a great many matters not confined to their offices. Two of these more or less personal matters are analyzed by authorities – one, the tendency of some folks to let their waistlines get a bit too large for their own good and the other, the tendency of some folks to talk, either so long or so dully, that people just avoid them. Obesity is discussed (p. 15) by Dr. W. Schweisheimer, and the art of conversation by Psychologist Donald A. Laird (p. 25).

• • •

Reinforced plastics—and there are a number of substances so classified – are one of the hottest new groups of materials in industry today. R. W. Barrow explores (p. 16) this fast-growing field and the remarkable diversity of products, from fishing rods to caskets, now being made of reinforced plastics.

• • •

R. M. Winters reports (p. 20) on the government's increasing disposition to inform the public in more detail on what our experts are learning about the status of science and technology in Russia. In general, it seems that Red technology is moving rapidly ahead but partly because Soviet scientists are copying much from the West, thereby shortcutting basic research. Whether this policy will prove wise in the long run may be another matter.

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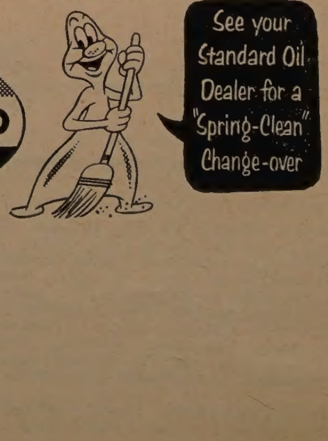

See your Standard Oil Dealer for a "Spring-Clean" Change-over

The Editor's Page

Communist Teachers

Millions of words have been written and spoken on the delicate but vital question of Communist teachers in our colleges and universities. After a thorough study of the problem, the Association of American Universities has issued a statement signed by the heads of 37 universities, including Columbia, Harvard, Stanford, Duke, Johns Hopkins, California, Chicago, Yale and Princeton. The following few sentences from that report speak volumes. A university's "whole spirit requires investigation, criticism and presentation of ideas in an atmosphere of freedom and mutual confidence. . . To enjoin uniformity of outlook upon a university faculty would put a stop to learning at the source . . . There is a line at which 'freedom' or 'privilege' begins to be qualified by legal 'duty' and 'obligation.' The determination of the line is the function of the legislature and the courts . . . If he (a professor) is called upon to answer for his convictions it is his duty as a citizen to speak out."

In its conclusion, the report comes to the heart of the matter in this unequivocal statement, "Above all, a scholar must have integrity and independence. This renders impossible adherence to such a regime as that of Russia and its satellites. No persons who accepts or advocates such principles and methods has any place in a university. Since present membership in the Communist Party requires the acceptance of these principles and methods, such membership extinguishes the right to a university position."

This is the educational world's own answer to the hubbub over academic freedom of thought resulting from efforts to eliminate Communists from teaching.

No Room For Incompetence

It would hardly seem necessary to tell a businessman that operating a business, even under the most favorable circumstances, is a complicated and risky enterprise demanding for success all sorts of tangible and intangible skills. Yet the actuarial facts of business life are often forgotten in times of prosperity and booming profits. In a recent survey, for example, the Commerce Department found that 32 out of every 100 firms which started in business since 1943, certainly a prosperous decade, did not survive their first year. Another 18 firms out of every 100 died in the second year, 12 succumbed during the third year, and at the end of five years only 27 of the original 100 firms were left.

It can, of course, be pointed out that many of these ill-fated concerns were extremely small with only a handful of employes, and also that such small firms are often sold out by the owner with no loss to anyone. Still the fact remains that only one out of two new firms lives beyond two years. A related study by Dun and Bradstreet goes into this question of frequent failures. Of the more than 17,000 firms that failed during 1950 and 1951, D & B finds the chief cause of trouble was plain incompetence, which was responsible for 44 per cent of the failures. The next highest deficiencies were (1) lack of experience in the chosen line of business and (2) lack of general managerial experience. Each of these causes accounted for 15 per cent of the failures in the two-year period.

There is a mighty lesson in these statistics. It's simply this: incompetence and lack of experience are well nigh fatal even in the lushest boom ever. It is also a reminder to those who envy the successful small businessman and his seeming independence that he did not attain his success easily nor without taking a long risk.

Gargantuan Dilemma

Secretary of Agriculture Ezra Taft Benson recently gave some figures which show where our present agricultural support problem has gotten us.

As of March 23 the cost of commodities acquired by predecessor administrations, mostly under fixed requirements of law, totalled $1,106,952,000. Holdings, included 110 million bushels of wheat, and 259 million bushels of corn, some of which is four years old and being sold to prevent spoilage. In addition, the government has under loan about 200 million bushels of corn, 400 million bushels of wheat and two million bales of cotton.

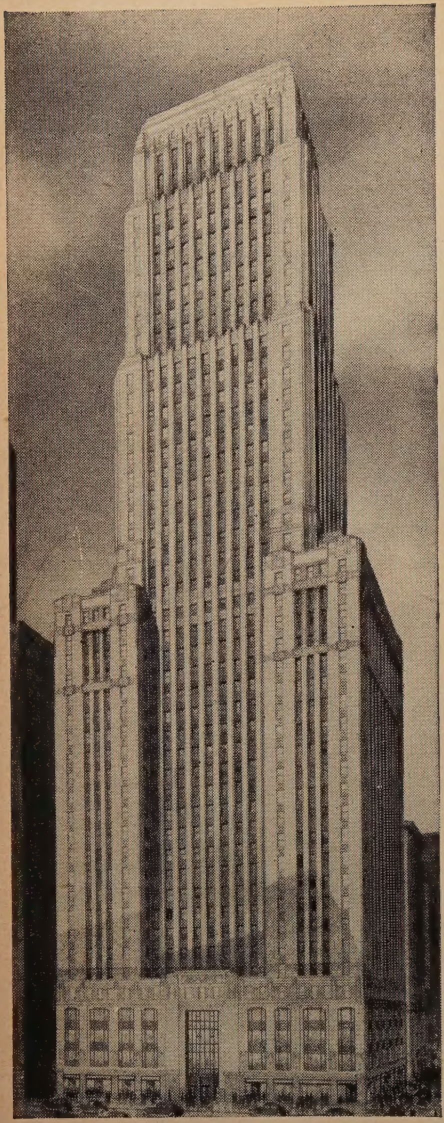
The total of these and other commodities under loan and likely to be acquired would bring the total cost of government owned farm commodities to almost $3 billion.

On this investment we face, according to Secretary Benson, "tremendous losses on the disposition of perishables and undoubtedly some loss on the basic commodities as well."

Accumulations such as these are what occur when price supports are not accompanied by production controls. And yet no one, least of all the farmer, wants production controls. A variety of economic maladjustments also arise. For example, we have been importing foreign wool while storing domestic wool. We have also been driving the textile business from cotton to synthetic fibers, and storing butter and using margarine.

It seems obvious that after more than 20 years of working on the "farm problem" the problem has not been solved and many new problems have been created. The new secretary has a herculean job. What's worse, his task is deeply involved in the pocketbooks of the nation's taxpayers and the nation's farmers which makes it red hot politically.

Alan Sturdy



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Here...There... and Everywhere

• ***Distaff Drivers***—Depending upon your viewpoint, driving on the public highways is becoming safer—or more dangerous. Which is one way of saying that there are more female drivers on the roads today than in 1940. An Automobile Manufacturers Association survey indicates that about 70 per cent of American drivers are men, 30 per cent are women. It is estimated that in 1940 the ratio was 75 to 25.

• ***Busy Tax Court***—Protesting taxpayers, says Commerce Clearing House of Chicago, are swamping the United States Tax Court with the largest number of contested cases in 25 years. On top of a huge backlog of 11,487 cases at the start of the court's fiscal year last July 1, 3,927 cases were filed during the next six months. This was a 41 per cent increase over filings for the previous six-month period. The Tax Court is the only place a taxpayer can appeal a final demand of the Internal Revenue Bureau for additional taxes without first paying the extra tax requested.

• ***New Nickel Deposit***—The Freeport Sulphur Company announced last month that it has discovered a vast new deposit of nickel ore, estimated to contain at least 40 million tons of the valuable ore, in the vicinity of Moa Bay about 500 miles east of Havana, Cuba. The company believes that, except for certain deposits in Canada, the Moa Bay ore bodies constitute the most important proven sources of nickel in the free world.

• ***Tubeless Jet Tires***—The first tubeless tires for use on aircraft have successfully completed preliminary flight tests, reports the B. F. Goodrich Company. The Navy's new swept-wing jet fighter, the Grumman F9 F-6 Cougar, completely equipped with high-pressure tubeless tires, has been making flight tests conducted by the Navy since January 15 at the Naval Air Test Center in Maryland. Developed for the Navy by Goodrich, the new tires are expected to assure safer high-speed takeoffs and landings, save weight and simplify assembly and maintenance.

• ***Enrollment Record***—Illinois Institute of Technology of Chicago enrolls more engineering students than any other educational institution in America, according to a survey by the American Society for Engineering Education. Engineering enrollment at I.I.T. totals 4,621 undergraduates and 920 graduate students. Second and third largest engineering enrollments in the U. S. are at Brooklyn Polytechnic Institute with 3,190 undergraduates and 1,050 graduate students, and at Purdue University with 3,808 undergraduates and 313 graduate students.

• ***Come Home Again***—If your car is stolen, the chances are about three to one you'll get it back within 30 days. This actuarial intelligence is provided by Lumbermens Mutual Casualty Company which reports that 76 per cent of car recoveries are made within a month of a theft. What happens after that? Simple, your insurance company will write it off as a loss.

• ***Canine Traffic***—The British Information Service reports that the export market in dogs has earned England more than $2.8 million worth of American and other foreign currency in the last five years. Recently, for example, a consignment of nine pedigree Pekinese pups worth $5,600 was flown across the Atlantic from kennels in Rothwell, England to kennels in Columbia, S. C. The first import favorite in America is the miniature poodle followed by the

Pekinese. Another popular pooch is he Welsh Corgi.

Ah, A Real Space Suit — A pressure suit capable of protecting rocket or jet aircraft pilots at altitudes never before reached by man in powered flight has been added to the "Story of Rubber" exhibit at Chicago's Museum of Science and Industry. The suit is designed so that a man can stay alive, so garbed, without particular discomfort at altitudes as high as 100,000 feet or nearly 19 miles up. The space suit was developed for the Airborne Equipment Division of the U. S. Navy.

• ***What's Safest Job?*** — A recent occupational classification indicating the relative hazards of nearly 2000 different kinds of jobs indicates that the life of a baseball umpire is getting safer, while that of a movie actor may be getting more hazardous. The safety report, compiled by the Health and Accident Underwriters Conference, reveals that ski instructors are less liable to accidents than stable hands or grooms, while bartenders and beauty operators are just about equally liable to be laid up. Among the most hazardous of all pursuits are dynamiting, motorcycle riding and polo playing.

• ***Frills Eliminated*** — The General Electric Company is stripping its industrial drafting down to the essentials to save time, money and manpower. Simpler drawings, with superfluous artistry omitted, are the rule. In one instance a drawing which required 57 square feet of drafting paper was replaced by one with less than four square feet without losing clarity or accuracy. The large size rendering required eight days of one man's time; the small draft took two days. GE expects to save $60,000 a year on paper alone.

• ***Highway Housekeeper*** — California's highway department has developed a giant vacuum cleaner to keep the state's roadsides clean. During tests in the Los Angeles area, the huge truck-drawn sweeper picked up more than 150 cubic yards of roadside debris in three days' time. When the cleaner was first used, it picked up bottles, cans, leaves and paper and threw them all into a whirring fan, but this was later corrected so that heavy ar-

(Continued on page 39)

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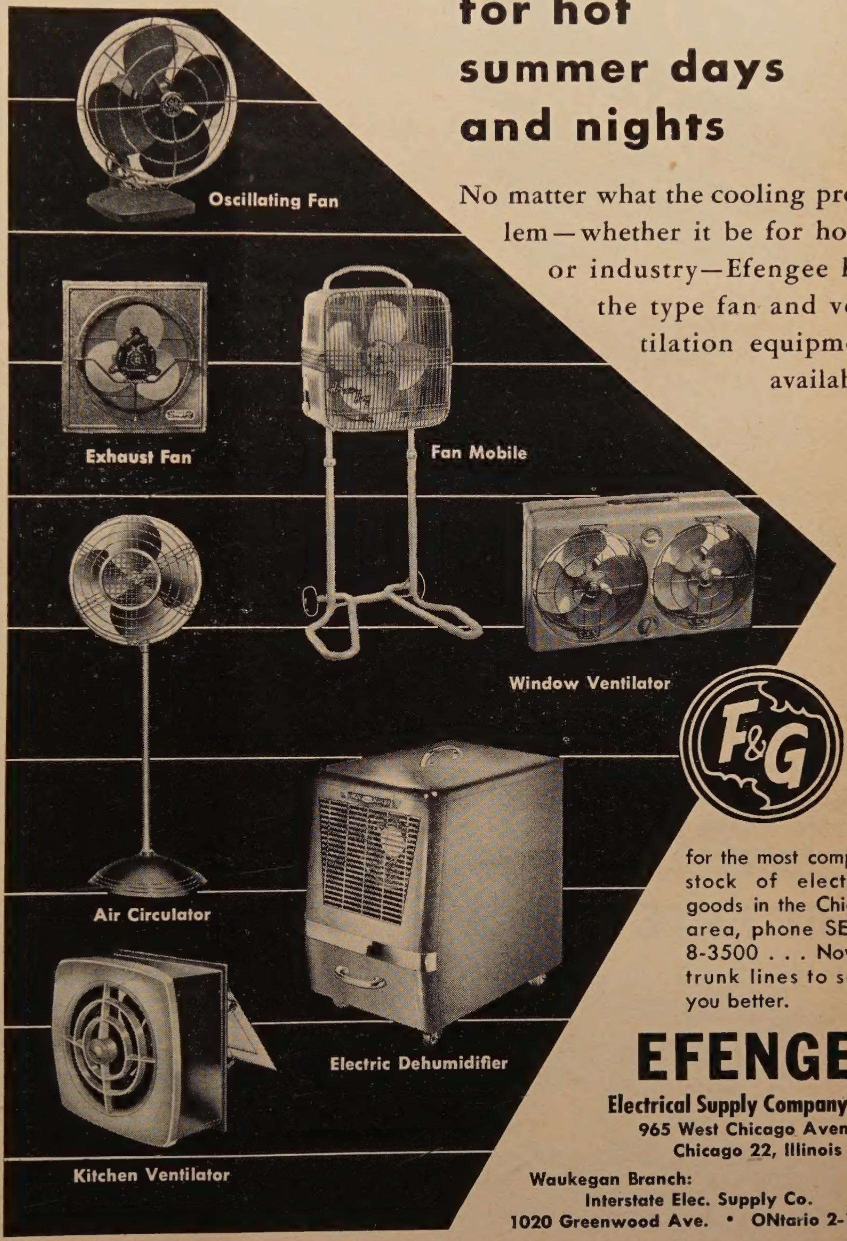

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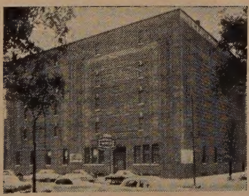

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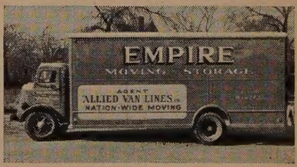

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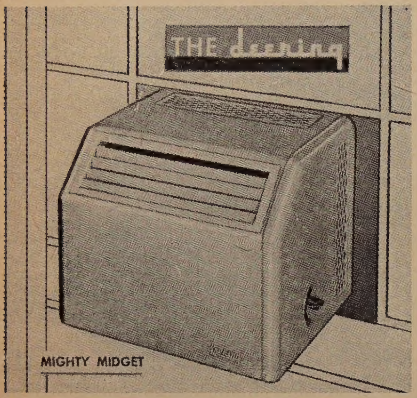

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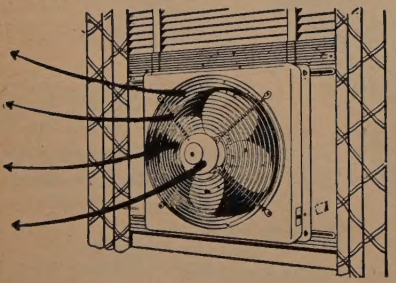

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Trends . . . in Finance and Business

• ***GI Loans Drop Sharply*** – Government-insured GI home loans, which played such a prominent part in the housing boom following the war, are now on an extended decline. The United States Savings and Loan League reports that the proportion of such loans to total home mortgage lending sank to a new postwar low last year, when they constituted only 10.1 per cent of the overall volume of loans made on homes under $20,000.

This represented a sharp decline from 1951, when 15.5 per cent of all home loans were made under the GI Bill, and from 1950, when the ratio was 16.4 per cent of total mortgage volume. The peak postwar year for GI lending was 1947, when 542,000 loans made under the program accounted for 21.1 per cent of all home loans issued.

The savings and loan league further notes that the downward trend in GI lending began in May, 1951, when the Federal Reserve Board withdrew its support of the government bond market. "This action," the league declares, "which was a move against inflation, has resulted in a general stiffening of interest rates since that time, and in increases ranging up to one per cent on the yields on home mortgage loans. It was inevitable in a period of rising interest rates that the GI program would suffer because of its fixed interest rate ceiling, and that veterans would find GI loans increasingly difficult to secure."

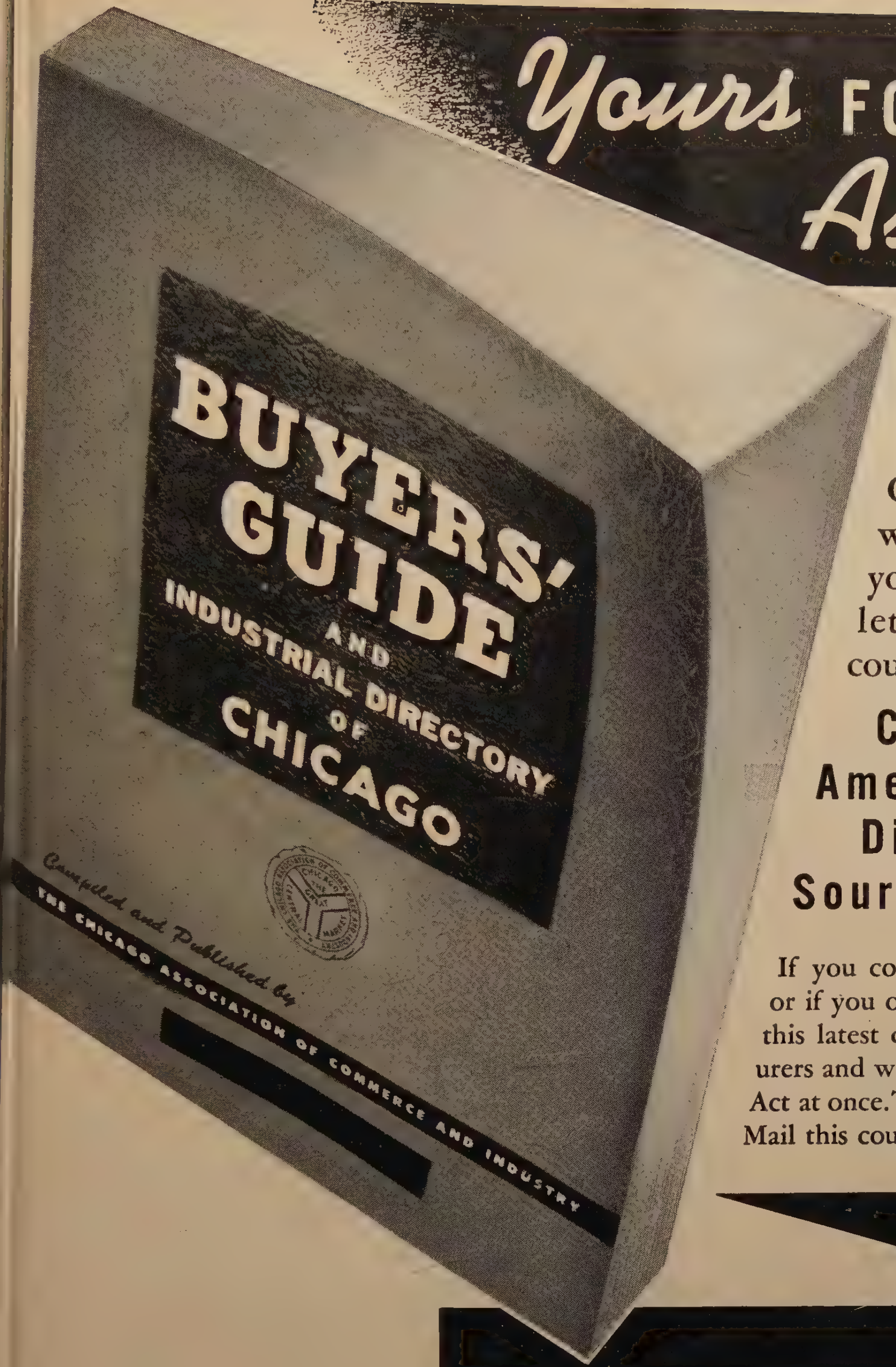
• ***After-Service Job Offers*** – If you are seriously looking for young talent among college graduates these days, it seems you have to be in a position to offer a "long-range" job —meaning the position will still be available after a hitch in military service. So indicates Cornell University's placement service which reports that about one-fourth of the 300 firms sending interviewers to the school this spring are making firm offers to men entering the service. Only three of 600 interviewers who have descended upon the campus for spring recruiting are restricting interviews to men who can start work immediately.

In one case a company has invited seven seniors to its laboratories for further interviews, at a cost of $100 per man, although all of the men face immediate induction into military service. As have other technical institutions, Cornell's placement service is beginning to run out of bright adjectives to describe the employment outlook for technically-trained young men. The outlook, says the service, for non-technical jobs is "very healthy," but the engineering picture is "almost fantastic." For example, representatives from 132 companies are interviewing the 31 seniors in chemical and metallurgical engineering, 15 of whom will probably enter service.

Meanwhile, according to Cornell, non-technical students are being sought for such fields as banking, manufacturing and retailing in sales, purchasing and personnel. Eight companies are interested in liberal arts graduates and 100 in business administration graduates. Oh, yes, there's one darker spot in the picture. Work in publishing and advertising, according to the university, is hard to find, since most small firms prefer men with more experience than the average college graduate possesses.

• ***How Many Steelmakers?*** – If you were to ask the average person whether there are more or less companies in the basic steel industry

(Continued on page 28)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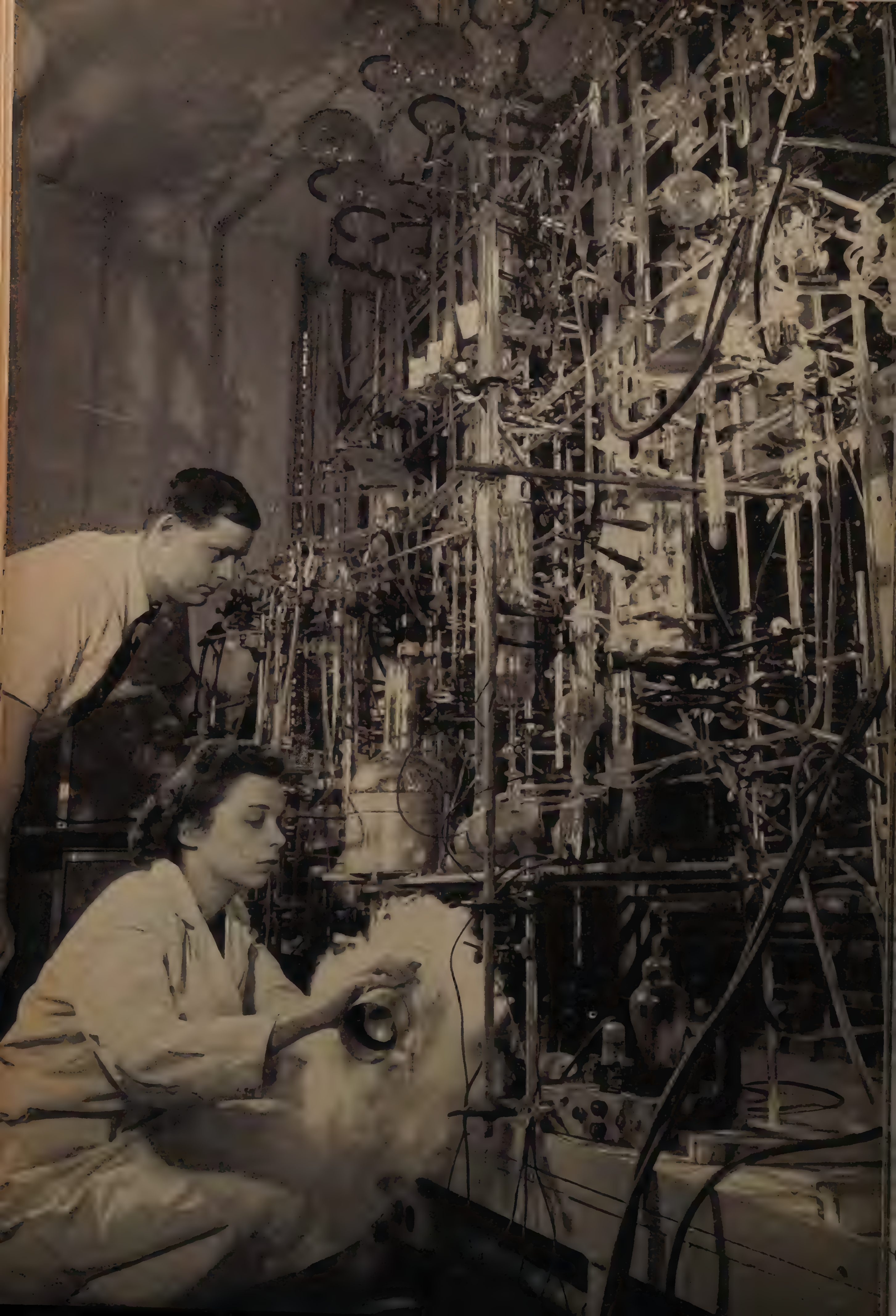


Let's Stop Wasting Engineering Talent!

By GEORGE M. MUSCHAMP

Here's one antidote for the critical shortage of engineers: use those we have more efficiently and with less red tape!

THE needs of American industry for engineers are well known. There are about 40,000 jobs pen this year for engineers and only 9,000 graduating in June to fill hem, and throughout the year we'll nly add about another 4,000 engieers. Most of the graduates have not ad military service so many will be rafted, further shrinking an already hort supply.

We have all heard the heralds of he so-called second industrial revoution. Much of this commentary as been of a research or visionary ature and its full effect and tempo annot yet be measured. It is safe, owever, to say that four times as many engineers as research workers vill be needed to reduce that reearch activity to practice. It then ecomes increasingly obvious that reruiting itself is no solution to the roblem.

There is, however, a practical means for minimizing this problem. Simply, we must depend less upon recruiting, and instead devise as many means as possible to "stretch out" the engineering talent we now have!

There have, of course, been innumerable programs and theories advanced on the best methods of utilizing our engineers. Yet, not enough companies have given sufficient thought to this problem of "saving" our engineers. Therefore, I'd like to review a few of the basic points involved.

Build Supporting Staffs

First, we must study the workload on our engineering people, and eliminate all chores which do not need their specializied training or are entirely unnecessary. This may mean expanding the supporting staffs — the draftsmen, the technicians, clerical and administrative aides — to back up the engineers. Eliminating the routine or clerical is more than just good business; it is also a prerequisite for high morale, for many professional people properly feel that a company does not fully appreciate their talents if they are being wasted on routine activities.

Closely tied in with an engineer's attitude toward a company's handling of his talents is his need for professional recognition. It's not wise to hold young engineers in junior capacities longer than necessary. One of the surest methods of increasing the value and productivity of the engineers you do have is to conscientiously groom them for greater responsibility.

Another point that often requires re-evaluation involves personnel administration. In most companies salary administration, employment practices and training methods were probably established to meet the needs of the rank-and-file employees. Thus, they may very well be unsuitable for the professional or engineering personnel. If we re-examine our personnel practices with this group in mind, we may well find many areas among the techniques and procedures that require revision.

Now a serious word about perfectionism — let's avoid it! It makes business sense when you realize the waste of engineering manpower and development dollars that continually results from time-consuming, unnecessary, and expensive perfectionism. Everything the engineer does must be accomplished within the framework of how much it will cost and how long it will take. Perfection, if it is attained by disregard for

---

The accompanying article has been dapted from an address delivered by the uthor before the American Management ssociation manufacturing conference in ew York City on April 8, 1953. Mr. Muschamp is engineering vice president of the rown Instruments Division of Minneapois-Honeywell Regulator Company.

Gulf Oil Photo

← "We must study the workload on ur engineers, eliminating all chores which o not need their specialized training or re unnecessary" these two prerequisites, is wasteful!

The problem of work assignment is one that can prove to be a major bottleneck in any program to make better use of engineers. Essentially, it can be solved by better planning of assignments and better judgment in their selection. In other words, only projects which can be justified should be undertaken. Fewer projects will then be abandoned at some later date for reasons which might have been anticipated at the start.

That, very briefly, covers the areas which form the nucleus for any "stretch out" program. Now I'd like to single out for closer scrutiny the areas of:

1. Mechanization of engineering functions;
2. The integration of these functions, and
3. Finally, the application of control principles to increasing the efficiency of an engineering organization. I single these out because in some 22 years of automatic control and engineering administration experience, I have found these points basic to such programs as we are discussing here today.

Machine Replacements

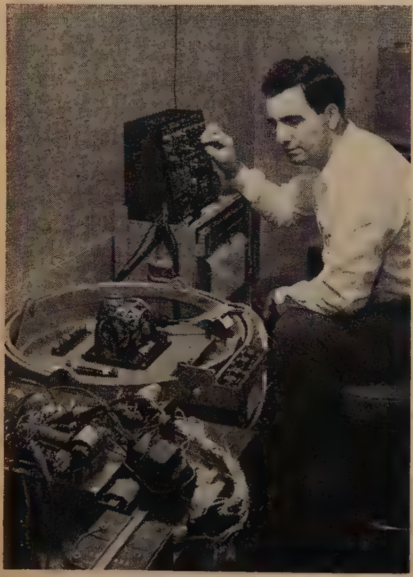
Let us look at the mechanization idea first. When the economics are right, there is no surer way of conserving manpower than to replace it with a machine. Initially, of course, this thought raised the hackles on those who viewed the idea with a pessimist's foreboding of man enslaved to the machine. We realize that no such thing will happen and, lately, I've been delighted to see a change in attitude among those early pessimists.

We all know that there are ways of conserving mental and related operations through machines. Like any innovation, the most important ingredient is a positive point of view. We can't start with the presumption that our particular operation is nc susceptible to further "routinization and possible mechanization. Nor ca we presume that we need full, o even partial mechanization. We mus keep an open mind and use an elementary approach along the lines o fairly well established principles o work simplification. This will brin out the areas where improvement can be made and usually wher mechanical aids may be employed Even if studies indicate that mechanical aids will not help, you wil in your course of analysis have mad some improvements of method.

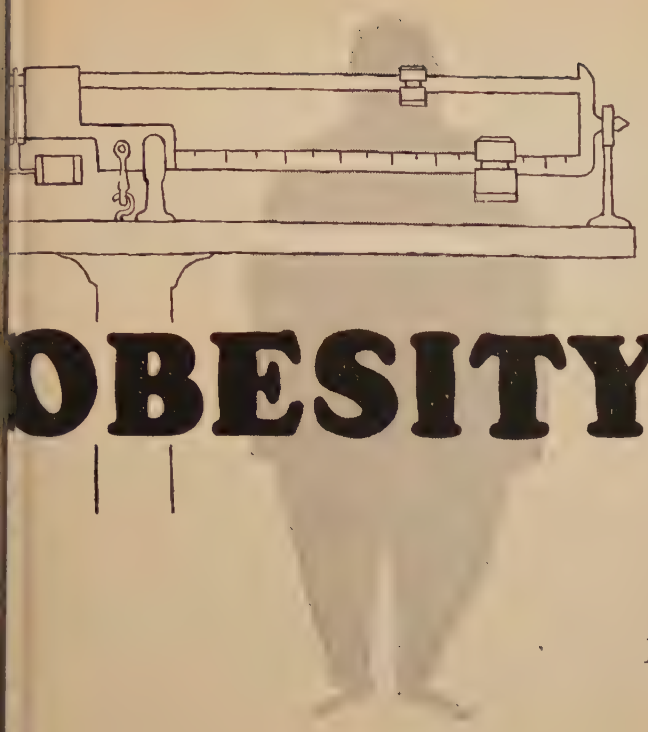
What kind of mechanical aids ar available? There are a vast numbe scanning devices for measuring temperatures and pressures; data reduction devices like magnetic, punche card and tape machines; automati curve plotting devices; automati logging devices; calculating machine and a host of similar time-saving instruments.

Now some will say this sounds ver efficient, but will we really increas our engineering output enough t justify the costs of the equipment I can only draw on the experienc of our company. As you may know we manufacture recording, controlling and measuring instruments. B

(Continued on page 42)



Typical instruments used by Minneapolis-Honeywell to conserve time of engineers: (left) an electronic recording unit that simultaneously records performance data for immediate and future study; (bottom) control and recording instruments are calibrated in company's Philadelphia plant.



OBESITY AMONG EXECUTIVES!

FULL AROUND THE WAISTLINE?

READ THESE FRANK MEDICAL FACTS!

By W. SCHWEISHEIMER, M. D.

WHEN General Motors Corporation undertook recently to assess the physical condition of its executive employes, it promptly discovered the truth of what doctors have been saying for years. Businessmen, as a class, not only tend to be overweight, they are also shortening their life expectancy in direct ratio to their excess poundage!

In the General Motors health program, 1,231 executives were examined. Of this number, reports the corporation's medical director, Dr. Edwin De Jongh, 127 — or more than 10 per cent — were found to be overweight. Obesity, in fact, outranked all other unfavorable diagnoses by more than two to one! And the principal cause of overweight could be summarized in one word: Overeating.

Despite all that has been written of the hazards of obesity, thousands of businessmen go right on consuming excessive amounts of high-calorie, fatty foods. They continue to ignore such statistical authorities as Vice President Louis I. Dublin of the Metropolitan Life Insurance Company, who recently disclosed some startling facts in a study of "substandard" insurance policy holders who were first-class risks in every respect — except their weight.

This study indicated the adverse effects of overweight at every period of a man's life. Among these overweight males, the mortality rate was half again as high as for men accepted for standard insurance. The same ratio, incidentally, applied for overweight women as compared with those of normal weight.

Waist Line — Life Line

In particular, Metropolitan Life found, death rates from heart and kidney diseases — were nearly 50 per cent above normal among overweight men. For cerebral hemorrhage, the death rates were 60 per cent above normal, and for chronic kidney diseases 90 per cent! Diabetes, however, showed the greatest excess mortality.

Fortunately, there are ways to improve the situation. The most encouraging fact is the discovery that weight loss materially improves one's health outlook. For example, the Metropolitan Life study indicated that the mortality rate was 42 per cent above average among "moderately" overweight men. But when these men succeeded in reducing their weight and consequently had a change of rating, their death rate dropped to only 13 per cent above average.

There are long-range benefits in eliminating excess weight. Weight control now appears to be the most effective means available of preventing or retarding the degenerative diseases of middle and later life. And these diseases far outrank all other diseases as a cause of death!

We talk a lot about high blood pressure today — probably too much. But it is wise for people with high blood pressure to avoid obesity. If they are fat, their blood pressure is decidedly helped in many cases by weight reduction with a sensible diet. Dr. Walter C. Alvarez of the Mayo Foundation reports that he has often watched a fat person's blood pressure drop 44 millimeters, as he took off 40 pounds of weight.

Dr. W. J. Walker, an Army physician, recently called obesity the nation's greatest problem in preventive medicine. At the National Conference on Chronic Diseases, one report estimated that 25 to 30 per cent of the U. S. adult population is over-

(Continued on page 41)

Watch Reinforced Plastics: They're

Every week brings more new products made of these ultra-versatile materials

GETTING ready for a fishing trip? Planning on catching some hefty muskies, trout, pike or bass in some remote mountain stream or in the quiet waters of the North Woods?

If so, get set for some real competition, for there are some 15 million fishermen, both amateur and professional, equipped with the latest-type fishing gear out to rob you of the "big ones."

These 15 million competitors are armed with fishing rods of reinforced plastic — a new material said to have many advantages over older rod materials. According to 40 sports equipment manufacturers, you can't get a better fishing rod than one made of reinforced plastic.

Why? Because reinforced plastic permits the utmost in engineering and design control, enabling rods to be molded to meet the specific needs of every fisherman.

With reinforced plastic, manufacturers can vary, in precisely-controlled degrees, the flexibility and rigidity of rods from handle to tip. This means a wide choice of "rod action." In addition, the high degree of dimensional stability of reinforced plastic does away with the possibility of a rod's "taking a set," thus eliminating a big worry of every angler.

Many Sports Goods

But fishing rods and other sports equipment* such as skis, archery bows and weather-resistant boats, are not the only things now being made of reinforced plastic. Today, the tough, new material is being used or experimented with in a host of industries, including home appliance, construction, transportation, electrical equipment, luggage, furniture and automobiles. And merely keeping up with new products made of reinforced plastic is pretty much a day-to-day job!

The Society of the Plastics Industry, which keeps tab on the growing list of reinforced plastic products, notes, for example, that th material is being used in such diversified items as machine housings sports cars, molded chairs, file cabinet drawers, industrial safety helmets, juice dispensers and even coffins. Last year, according to the society, the reinforced plastics industry increased its production by abou 40 per cent, selling approximatel 19 million pounds of polyeste resins, the basic component of reinforced plastic. This compares with sales of 14 million pounds in 1951 nine million pounds in 1950, and seven million pounds in 1949. Used with last year's production of polyester resins were 11 million pound of fibrous glass, the number two component of reinforced plastic. "Prospects in 1953 indicate a probable market for another 40 per cent increase up to the 27 million pound figure for polyester plastics in the reinforced field," the plastics society adds.

Now just what are reinforced plastics? Industry people emphasize, first that they are not substitutes for

---

*One of the latest items of sports equipment of reinforced plastic, introduced only last month, is a 17-foot outboard day cruiser in kit form for final assembly in one's home. The molded hull, deck and cabin in the kit are fabricated from glass fiber and Vibrin, a polyester resin made by the Naugatuck Chemical Division of U. S. Rubber Company. The 17-foot kit cruiser, made by the Marine Craft Division of Bedell Engineering Company of Port Washington, Long Island, N.Y., is priced at under $800; a 16-foot reinforced plastic "outboard runabout" is priced at under $400 in kit form.

Kaiser-Frazer will soon begin producing "DKF-161" Fiberglas sports car

Fiberglas ceiling panel, Alsynite, ad

Red Hot!

By R. W. BARROW

(Above) Bedell Engineering Company's 17-foot, reinforced plastic "Sea Rambler" now sold in either kit or finished form. (Top-right) Deck of a "Sea Rambler" comes off mold; in all it contains three molded parts

etal, wood, or any other natural man-made products. Instead, ex- lains the S.P.I., "They have a com- ination of properties present in no ther materials. In products where einforced plastics have superseded other materials, manufacturers have applied these properties to serve functions no other material could fulfill adequately; to do a better job than some other material, or to cut down costs without reducing product quality."

The basic components are a plastic resin (such as polyester, phenolic, silicone, melamine, epoxy or polystyrene) and a reinforcing material, such as fibrous glass, paper, cotton, sisal or asbestos. The majority of reinforced plastics now consists of fibrous glass reinforced polyesters.

Just as steel rods and mesh give concrete greater strength and minimize contraction and expansion, so the addition of fibrous reinforcement gives plastics greater strength,

(Continued on page 32)

un's rays in covered patio

Reinforced plastic rod boasts ample "backbone" and cannot "take a set"

CHICAGO'S BACKYARD

If you spy your neighbor "rapelling"
he may be a flat-land "mountaineer

By ERNEST A. RICHTER

IT was one of those moments when panic grips the mos experienced mountaineer. The climber was clinging to sheer wall. If only he could grasp a knob of rock, tantalizingly beyond his reach, or touch the narrow ledge just belo it. Above the ledge stretched a series of hand and toe hold leading to the top.

In desperation, the climber let his body swing down towar the ledge, while his outstretched right arm groped for the kno But at that soul-chilling instant a cry came from below: "Gi down offa there!"

Startled, the climber missed his hand-hold and fell—fou feet—landing in front of a Chicago park policeman!

The climber, a certified public accountant, explained tha he was merely sharpening up his climbing technique. Hi training ground was one of the rock and masonry bridge that span the bridle paths in Chicago's Lincoln Park. Still th cop had the last word: "I got orders to keep kids from gettin hurt and that goes for you, too."

A few weeks later the CPA climbed the Matterhorn. He ha learned all his mountaineering in the flat lands of the Middl West.

Several hundred other prairie dwellers have demonstrate that you can conjure up ersatz Alps even if there is nothin higher than a haystack on your horizon. Mountaineering, th dictionary says, is the art of attaining high points difficult o access. Since the highest point in Illinois is a modest 1,241-foo hillock, some may wonder how a Chicagoan can practice mountaineering. The answer is a matter of simple arithmetic.

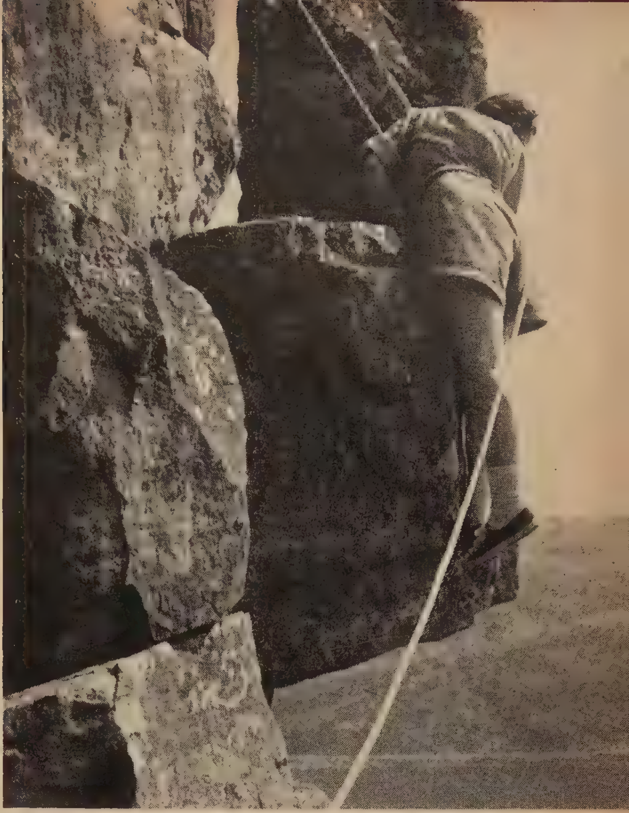
Put together enough low points difficult of access and yo can ultimately climb the equivalent of any mountain. Yo will not, of course, penetrate the regions of rarefied atmosphere enveloping an actual peak, but all other problems o mountaineering can be met and mastered in small doses.

The Chicago Mountaineering Club, a robust organizatio of flat-land climbing enthusiasts, opens its season in earl spring with a full day of climbing in an abandoned limeston quarry. Here, crumbling ledges duplicate some of the mos ticklish climbing found in the Canadian Rockies.

Before tackling the bluffs which tower all of 30 feet, novice

MOUNTAIN CLIMBERS!

own his chimney, don't snicker—
reparing to assault the Matterhorn



It may be a long, hard and breathless trip up but, ah, the thrill of hanging in mid-air . . .

and once at the top the view is superb! Views are along Mississippi River's risky palisades

re briefed by experts on the simple techniques of rock limbing. Although most Chicago mountaineers have learned heir skills within a few hundred miles of the Loop, the club ncludes seasoned Alpinists who have mastered the art in urope.

The first lesson is in tying the two basic knots of mountaineering—the bowline for the leader and the anchor man on a ope, and the butterfly for those at intermediate points on the ine. The pupil may even do a bit of rapelling, or "roping down," one of the most useful mountaineering techniques. For etting down a mountain it's almost as fast as falling — and arkedly safer.

In rapelling, the climber loops the middle of his rope around secure object like a boulder or iron spike and lets the ends all toward his intended landing point, making sure, needless o say, that both ends reach. Next he straddles the two free trands of rope and winds them around his shoulders and nder his arm. By regulating the friction of the rope against is body, he can "run" down the face of the cliff. It's exhilarating and makes excellent picture copy for rotogravure editors.

One novice was so thrilled by his first taste of rapelling that e tried "running" down the stone-faced chimney of his home n an exclusive Chicago neighborhood. A pop-eyed neighbor rantically called police, who later reasoned that if a man wanted to rapel down his chimney in preparation for the Matterhorn, that was his business.

Chicagoans have higher practice grounds within a few hours drive. Their favorite spot is Devils Lake, Wis., where towering quartzite cliffs challenge the skill of experts. For beginners there is a ticklish traverse (a horizontal route along a ledge) that requires the utmost precision and balance. Happily, it doesn't matter if you fall for the entire traverse is at the base of the cliff 12 inches off the ground.

Another "mountainous" region is the Mississippi River palisades, where climbers can practice upon such picturesque pinnacles as the Sentinel, the Twin Sisters, the Open Bible, and one "peak" inelegantly, but aptly, called Little Stinker. Winter brings reasonable facsimiles of glaciers and ice fields

(Continued on page 26)

What We Are Learning About Soviet Technological Progress

U. S. observers now say Russia is close behind us in major science

By R. M. WINTERS

Russian equipment captured in the Korean conflict, like this radio transmitter (above) and an undamaged Yak fighter plane (below), has been a valuable tool in U. S. efforts to evaluate present day Soviet scientific progress. Experts say most captured equipment is of excellent quality

THE excellent quality of Russian made equipment captured by our forces in Korea, news of which is now trickling to the American public, reveals that Russian engineers are keeping up with U. S. technological progress. More and more, government officials are releasing information on Soviet equipment in the belief that the nation ought to be more fully informed about the enemy we face.

For example, the Army Engineer Corps has permitted reporting on the Stalinetz-80 tractor which the Caterpillar Tractor Company of Peoria, Ill. found to be a metric-sized copy of one of their own models.

The Soviets' keen knowledge of engineering is obvious from a study of captured machines. The Reds redesigned the machine to fit the more convenient metric dimensions, but they paid little attention to appearance. The parts are rough on the outside, but careful attention was given to finish and close tolerance where it counted for performance —at bearings for example.

Information Sources

Our military observers say that Russia is keeping up with us in major fields such as atomic energy, electronics and aviation.

The details on how Russia views science and technology presented in this article have been obtained by interviews of U. S. officials, from the Soviet Embassy in Washington (to be taken with reservations, of course) and from students of Russian science and economy. These latter experts had evaluated Soviet technology in the unemotional objectivity of scientific fact-finding.

They say that the great technological advances made during the past 20 years could have been foretold. After the Bolshevik Revolution in 1917, the status of Russian science changed considerably. The Communist Party and the government began to provide extensive facilities for research which Czarist Russia neglected almost completely. A new network of scientific institutions—the specialized research institutes—were brought into being.

Science was recognized as a partner in the march toward industrialization. Today Soviet science is well provided for. It enjoys the active support of the Communist Party, the government and until his death last month, of Stalin himself. Because of his background, the new dictator, Georgi Malenkov, is expected to become the patron saint of Soviet science.

Five-Year Plan Goals

In each of the five-year plans of industrial expansion, technology was counted on to bring about increased production. The sixth and seventh plans (ending in 1960 and 1965 respectively), blueprinted by Stalin as early as 1946, call for tripling Soviet industrial production over pre-war levels.

In the early 1950's, our studies indicate, the Soviets were able to exceed their best pre-war production, which would indicate that they had largely recovered from the industrial destruction of World War II. U. S. experts in Washington believe there are three major reasons why Russia has been able to rebuild her industry so rapidly. It is no secret that Soviet schools of higher learning are jammed. Russians always had a high regard for education and science, and this has been fostered by the Communists into a national phenomenon. The elite of Communist Russia are the educators, writers and technicians. They get better salaries, better accommodations, more food and clothing rations.

But even without these inducements, the interest of the Russians in learning makes it possible to increase the number of engineers, doctors and scientists as fast as schools can be built.

The engineer training, for exam-

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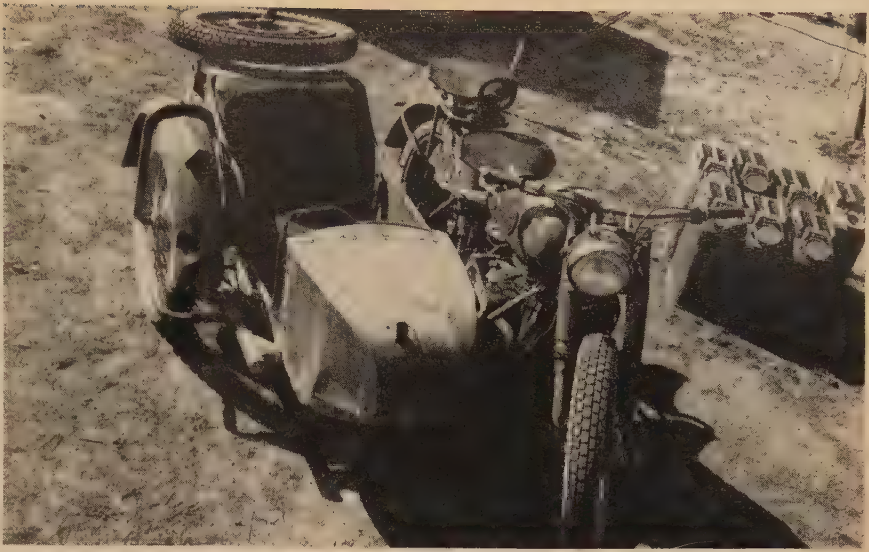
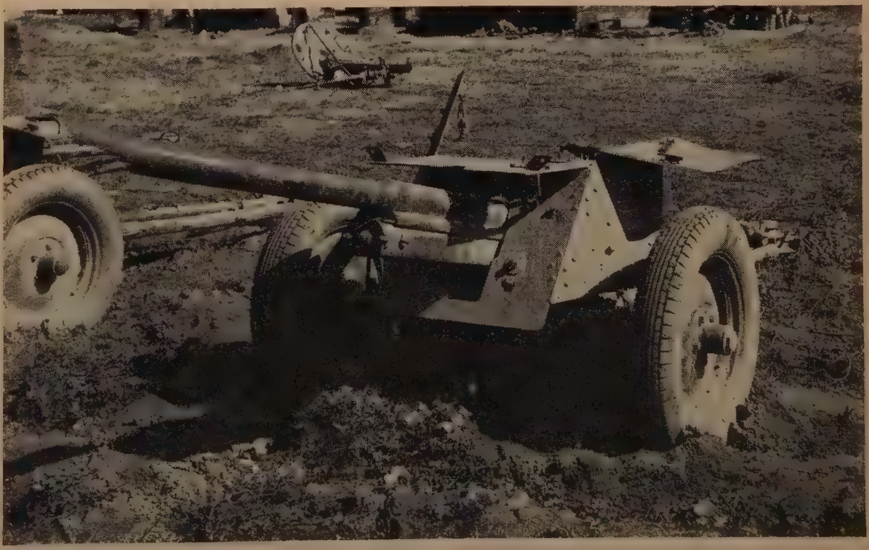


Many Russian items are extremely close copies of similar U. S. equipment. Notably this Russian-built motorcycle and sidecar (above) and a Stalinetz-80 tractor (below) which Caterpillar Tractor Company experts have found to be a near-perfect metric copy of the company's D7 tractor

Another item of captured Russian equipment that has been the subject of exhaustive study by U. S. scientific experts is this Communist 45-millimeter antitank gun that was captured from Communist forces by the U. S. Second Infantry Division during early months of hostilities in Korea



For Chicago, an . . .
ATOMIC HOSPITAL!

Now Chicago enhances its reputation as the "world's outstanding medical center" with the opening of the fabulous $4.2 million Argonne Cancer Research Hospital—here man's most baffling medical puzzle may well be solved at last!

By J. P. CARRUTHERS

EIGHT years ago this August the first atomic bomb fell on Japan. The blast, which obliterated almost an entire city, marked the beginning of a fearsome era—the atomic age. The A-bomb, some believed, would soon bring an end to civilization, and certainly it could not be denied that this could happen. But those who took a longer, calmer look at this momentous development decided that its potential for good was as great as its power for evil.

What has happened since 1945 bears out this optimistic hope. Working quietly in secluded laboratories, scientists have been using their new-found knowledge of atomic behavior to fight disease and improve the living standards of mankind.

One of the biggest recent advances was the opening, last March 14, of the Argonne Cancer Research Hospital, the latest addition to Chicago's fast-growing medical facilities and one more strong argument to its claim of being the outstanding medical center in the world. The $4.2 million hospital has eight floors, two of which are below ground. Two floors are devoted to patient care and the rest of the building houses radiation devices and laboratories where advance research is carried on. It is the only hospital in the world built especially to focus the power of the atom on the destruction of one of mankind's oldest and deadliest foes: cancer.

"Precautions Everywhere"

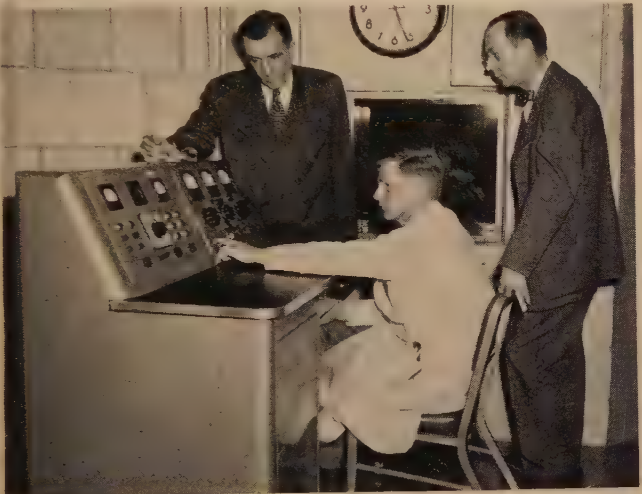
The hospital was financed by the Atomic Energy Commission and is being operated by the University of Chicago. Facilities are available to the Argonne National Laboratory and thirty-two universities and research organizations.

Perhaps the most interesting thing about this ultramodern hospital is the specter of atomic power which haunts the building like a sinister ghost. Everywhere precautions are taken against the Frankenstein which science has created and which, if not closely guarded, could escape with disastrous results.

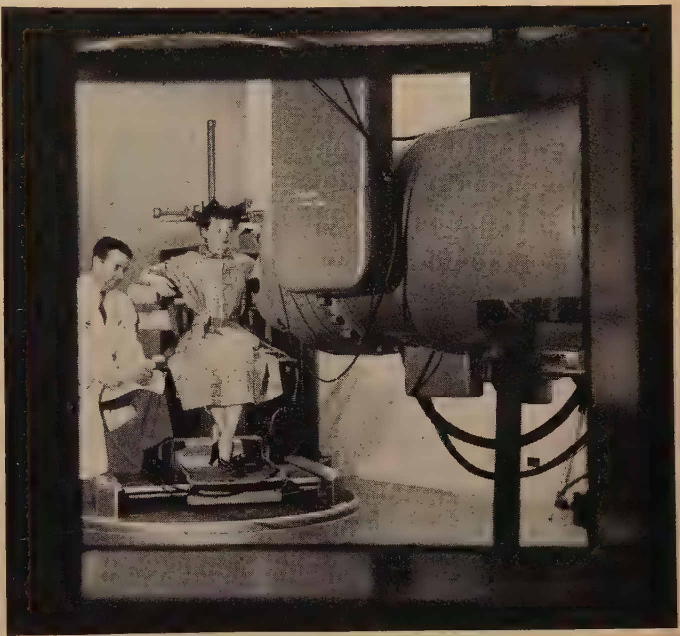
Patients' rooms on the third and fourth floors are separated by eight-inch concrete walls to prevent the spread of contamination if any one room becomes atomically "hot." Floors are covered with plastic, so any contaminated particles can be cleaned away quickly. Patients who have received isotopes can't see visitors for 48 hours atferward—a precaution to prevent the transmission of dangerous radioactivity. Floors are checked for radioactivity every day by technicians using Geiger counters, and before it is sent to the laundry, patients' linen is also tested to make sure no vagrant isotope slips out of this "hottest" hospital in the world. Nurses and attendants wear special badges which register exposure to radiation.

Laboratories for processing large quantities of radioactive materials are located in the basement. Here isotopes are stored in 40 stainless steel tubes, eight inches in diameter. These extend eight feet below the

As a sideline, the big, new "atomic hospital" will produce a thousand mice a week for scientific study of the effects of radiation. Here Dr. Matthew Block and X-ray Technician James C. Bland (right) prepare the mice for a hefty 250,000-volt X-ray exposure



Dr. Lowell T. Coggeshall, Engineer Don D. Davison and Dr. Leon O. Jacobson (l. to r.) observe many complicated buttons and knobs that control this . . .



. . . Van de Graaff generator while in operation. View is through a special zinc bromide window that permits full observation, yet prevents passage of dangerous radiation

floor and are encased in a solid block of concrete. The raidoisotopes are stored in two-foot-long lead containers which fit inside the tubes. The lead around each shipment of isotopes prevents radiation from escaping and the concrete keeps the radiation from many containers from building up to potentially dangerous levels.

In the hospital sub-basement, 19 feet below street level, are twelve 12,000-gallon, glass-lined storage tanks where radioactive wastes are stored until they can be disposed of safely. The sub-basement also contains heavily shielded rooms for the irradiation of patients and animals. These operations can be watched through windows up to three feet in thickness. Containing solutions of zinc bromide, these specially-built windows stop radiation, yet permit the scientists to see around corners because of the way light rays are bent in transmission. Developed at Argonne National Laboratory, five of these windows cost $10,000.

Other costly and highly specialized pieces of equipment are or will be located in the hospital. The two-million-volt Van de Graaff generator, for example, produces a high-energy beam of either X-rays or electrons. This potent stream of energy is focused on cancerous tissue. Another significant piece of equipment—yet to be installed—is the cobalt-60 "bomb." It is also used to destroy cancerous growths.

Within a year, the third major device, a linear accelerator, will be installed. This machine will step up the energies of an electron beam to 50 million volts—enough to pass right through a human body. Arrangements are also being made to use the university's 450-million-volt synchrocyclotron, the second most powerful atom-smasher now in operation, in connection with the hospital's work.

In such research, of course, science needs vast quantities of experimental animals like mice, rats, rabbits and guinea pigs upon which to study the effects of radiation. So the "atomic hospital" will have its own private assembly-line laboratory for the production of no less than a thousand mice a week! They will be a special strain of hybrid mice bred for their uniform response to the effects of radiation.

No one will just turn up at the new hospital for treatment. Each case will be selected on the basis of its importance in the studies contemplated at the hospital, which has been designed primarily for research rather than general treatment. Already many of the hospital's 56 beds are occupied with patients selected from throughout the Midwest.

Taken together, all of the wondrous devices in this newest Chicago hospital will provide scientists with every type of radiation which is now known and is thought to be useful in the treatment of cancer. Nobody can say what the results may be. But there is a good chance that scientists working in the Argonne atomic hospital may someday solve man's most baffling medical problem: the cancer riddle.

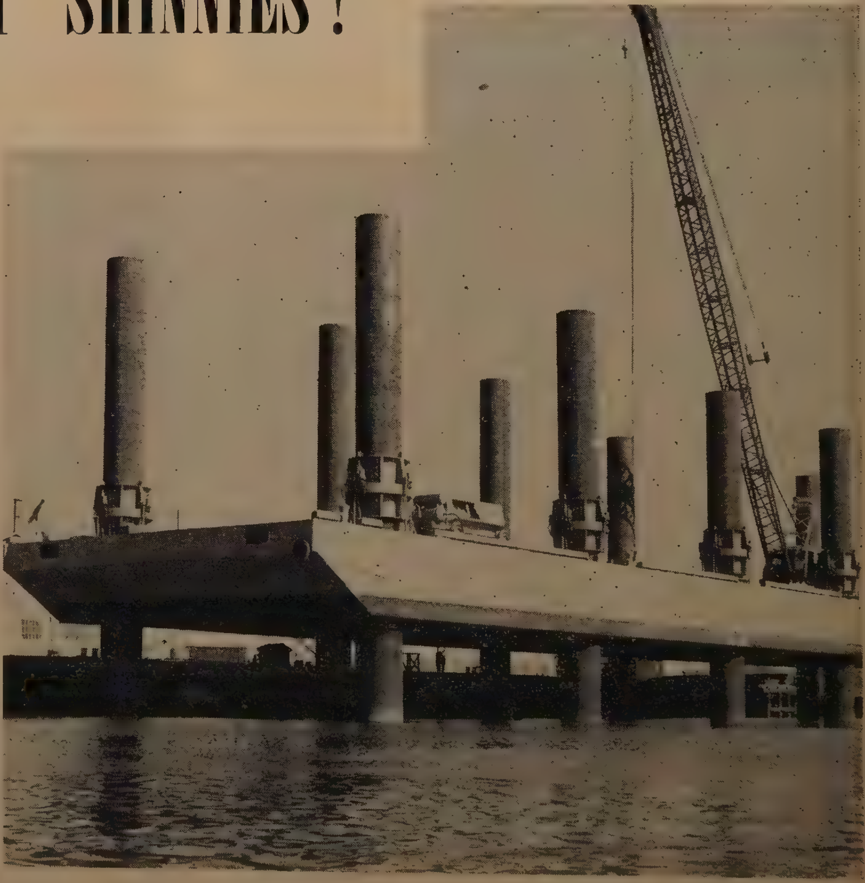
Radioisotopes used in hospital treatment and research are stored in 40 eight-foot-long, lead-capped stainless steel tubes embedded in concrete

THE DOCK THAT 'SHINNIES'!

The simple mechanical principle that enables a youngster to shinny up a tree trunk has been applied in this odd-looking steel dock which may soon revolutionize military, offshore drilling and commercial port operations. The unique dock is built as a barge, floated to its destination, "shinnied" up legs that it carries along, and then installed as a permanent installation. However, if you later want to move the "permament" dock, it can pick itself up in a matter of hours, be hooked onto a tug and towed to a new location!

Three of the mobile docks were built last year by the Consolidated Western Steel division of U. S. Steel at its Orange, Tex., plant. One of the first docks was towed in sections more than 2,000 miles across the Gulf of Mexico and up the Orinoco River in Venezuela, where another U. S. Steel division is developing iron ore deposits. Another unit has been in use under severe weather in Greenland.

Meanwhile, Consolidated has begun work on six mobile docks for the Army, whose engineers regard the "shinnying" docks as adaptable to military use.



Do You Converse —or Just Talk?

Here are psychology's secrets for changing mere talk into conversation

By DONALD M. LAIRD

AT A RECENT conference of psychologists, this interesting question was raised: "What is the one thing we do that most influences others?" Considered, of course, was the value of pleasant smiles, agreeable manners, generosity, helpfulness, and practicing the golden rule. But none of these influences could quite measure up to the importance of our conversation — our talking which communicates our attitudes and ideas to others.

The conclusion regarding the key role of talking has been confirmed by many studies of what psychologists call "group dynamics," which deals with how people get along in groups. These studies of all sorts of people in all sorts of relationships indicate clearly that what we say and how we say it counts for more in getting along with others than beauty, money, brain power and social position all put together.

Nor is it hard to understand why. We all know people who talk in a way that seems to reach right into our minds and draw us to them. And we know others who talk so we want to get away from them, or become antagonistic. Still others leave us neutral, or bored. Wise people have found that giving a little attention to their talk improves relationships with others, and seems to smooth out the rough spots of daily life.

The secret, psychologists believe, lies in transforming mere talk into conversation, and there is certainly a great difference between the two.

"It has been wonderful talking with you; you made me feel like a new person." And the long-winded housewife hangs up the telephone over which she has been droning for 25 minutes! Wonderful for her, perhaps, but not for her captive at the other end of the line, who had been drawing doodles, shifting her position, heaving sighs.

That "Wound Up" Feeling

Once in a while someone gets wound up and feels he has to talk to unwind. He dives into his talk and that's the last you see of him until his breath gives out. Great talker, but no conversationalist!

Geologist John W. Powell knew such a person and was moved to write this verse about him?

I love to wind my mouth up,
I love to hear it go,
I love its giddy gurgle,
I love its fluent flow.

Good conversation has interested thinkers through the ages. Their observations of the characteristics and results of good conversations can be used as tests to tell us the difference between just babbling and really conversing.

1. Do people say "My! How time has flown!" — and really mean it.

John Milton noted this favorable result of conversation, and wrote, "With thee conversing, I forget all time." In contrast, a few minutes with a bore seem endless. The telephone call may seem short to the person doing all the talking, but interminable to the person on the receiving end.

Nor will talking faster make time pass faster. But talking about subjects that interest or entertain the other person, and which get him talking, too, changes babbling into conversation and time flies.

2. Do people become more agreeable and cooperative? Do they try to be helpful rather than critical?

The person who likes to argue flunks this test. So does the person who corrects our grammar, or finds fault with our taste in clothes or movies or radio shows. The reformer or axe-grinder seldom brings out the other person's kinder side.

3. Do people feel happier after talking with you? If they feel as if a

bill collector has been talking to them, it is not a conversation.

Dolly Madison, probably the best conversationalist who ever lived in the White House, rated "A-plus" on this test. "I always feel better after talking with Aunt Dolly," a niece wrote in her diary.

But the person who is strangely fascinated with talk of disasters, bad luck, physical ailments, and other depressing topics is merely talking. Conversation should lift gloom, not spread it.

4. Do people think better of themselves after talking with you?

The talker who brags about ancestors, parades what knowledge he has, flaunts his possessions, or does all of the talking himself, flunks this test. But if he uses compliments, and gets the other person to talk about what he has done or thinks, then everybody begins to think better of themselves. Modesty helps make real conversation.

5. Do both you and the other person find it easier to talk each succeeding minute? Do both of you find that your thinking seems to be speeded up?

Ben Franklin Said—

Benjamin Franklin, a conversational flop at 19 who later succeeded, observed : "Conversation warms the mind, enlivens the imagination, and is continually starting fresh game that is immediately pursued and taken." To which Ralph Waldo Emerson added, "Sincere and happy conversation doubles our powers; in the efforts to unfold our thought to a friend, we make it clearer to ourselves." This test reflects the "That reminds me" aspect of conversation. What the first talker says reminds the other person of something to say. But the first talker has to give the other a chance to say it, if it is to become a conversation. The other person will not take much part in it, however, if we talk about topics in which he is not interested, or which he knows little about.

How would some wet blankets you know pass those tests? Or a traffic cop reprimanding a jay walker? Or a boss correcting your work?

The changes in people produced by a real conversation make it appear that workers would have better morale, and would work better, if their workday were lubricated by real conversation. Many bosses think conversation wastes time, so they try to improve efficiency by forbidding talk at work.

When actual records are studied, however, it is found that this is a false theory. Workers usually produce more when there is no hard and fast rule against conversation on the job.

Henri Deterding, the Dutch bookkeeper who combined more oil companies than any other man, said, "In almost every business relationship the human touch counts." Good conversation gives the human touch better than any other way.

Chicago's Back Yard Mountain Climbers

(Continued from page 19)

to Chicago's lake front and the mountaineers scale icy ridges and frozen hummocks thrown up by wind and waves. They also try out their ice axes to chop steps in frozen terrain and to see how well their crampons work. Crampons are sharp metal spikes arranged on a framework of iron to strap onto the bottom of one's shoes. They afford sure footing on the slickest slopes. Once, a stenographer-mountaineer resourcefully trudged to work on her crampons when freezing rain had glazed the streets.

Chicagoans, incidentally, have managed some of the toughest climbs in America and abroad. Fifteen members squirmed and pulled themselves to the crest of rugged Devils Tower in Wyoming. Two who had never set eyes on the Rockies before went up the great granite east face of 14,255-foot Longs Peak in Colorado. The climbers, harnessed to desk jobs, trained by plodding to the tops of skyscrapers in Chicago—inside, that is—during their lunch hours.

Mountaineering appeals to persons with a wide range of occupations. One of the most daring of the Chicago club is an atomic physicist at the Argonne national laboratory. A founder of the club is an investment banker. Women — housewives, business girls, and teachers — tackle the steepest pitches. Among other occupations represented are tree surgeon, machinist, editor, psychiatrist, chemist, printer, shipping clerk, biological researcher, botanist, statistician, microscopist, laundry manager, student, publicity man for a cemetery, seamstress, public health engineer, dress designer, garage mechanic, and movie director.

Neither age nor youth is a barrier to climbing. Among those who reached the summit of Longs Peak on a recent summer expedition was a retired vaudevillian crowding 70. The daughter of a member negotiated a steep rock wall at the age of five. But Chicagoans are not the only group of home-grown Alpinists in America's great central lowland. The Iowa Mountaineers, sponsored by the State University of Iowa at Iowa City, achieved a number of first ascents in the vast wilderness area around Mt. McKinley in Alaska.

One one of these climbs a young school teacher, who until then had never seen anything higher than the grain elevators at Cedar Rapids, found herself sitting on a lofty ice ledge with a vast glacier tumbled in frozen chaos at her feet. Suddenly she burst into hysterical laughter. Startled, the leader rubbed her face in snow and asked what was the matter.

"It just struck me funny that an Iowa school teacher should be sitting on a glacier in Alaska," she explained. High altitudes, it may be noted, often make peple light headed.

Reaction Positive

Few people are neutral on the subject of mountaineering. Either they belong to the emphatic "not for me" school or to a small but growing body who pursue the sport actively or vicariously through literature or the films. Many are deterred by the mistaken fear that climbing is extremely dangerous. Yet all organized climbing groups stress safety above everything else. Properly conducted, mountaineering is less hazardous than a Sunday drive in the family jalopy.*

True, there are dangers in mountaineering as in all sports, but they are definite and can be guarded against. They fall into three classes:

1. Falling—a good climber knows

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*This statement reflects the author's viewpoint; not necessarily those of the editors.

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S. A. SWENSRUD
President, Gulf Oil Corporation

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- Of the $4.8 billion Series E Bonds which matured between May, 1951, and December, 1952, more than $3.6 billion (75%) were held beyond maturity, under the automatic extension plan.
- More than 77 million units of Series E Savings Bonds were bought by individuals in 1952—13% more than in the previous year.
- During every one of the past 21 months, redemptions of unmatured Series E Bonds have been well under 1% of the total amount outstanding.
- 1953 figures should be even better—more than 1,000,000 Americans joined the Payroll Savings Plan in 1952, and thousands, literally, are enrolling every day.
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2. Being hit by falling objects such as rocks, ice or avalanches. Experience teaches what areas to avoid. Falling objects leave scars on a mountainside that can be detected.

3. Weather—this includes lightning, storm and exposure. These hazards can be anticipated and countered.

Now that you know the perils of mountaineering and are willing to face them, what are your chances of becoming a good climber? First of all, you needn't be a superman. To paraphrase the dancing masters, if you can walk you can learn to climb. Ballet dancing, incidentally, is excellent training for mountaineering for it teaches balance and rhythm so important in rock climbing.

You do need nerve, but even if you are jittery in high places you will be surprised at the growth of your confidence as you get accustomed to looking down into awesome abysses. A good pair of lungs, strong arms, and powerful legs are helpful, but even these are developed in actual climbing. The mountaineer is usually pictured as a lean, wiry type, but many of the best Alpine guides are short and stocky.

It will help if you can yodel for there are times when you will want to sing out to shatter the silence of icy fastnesses or to keep up your courage on a lonely rampart. And when you conquer a mighty peak you will want to trill out in triumph — that's if you have any breath left.

The author is president of the Chicago Mountaineering Club.

Trends In Finance and Business

(Continued from page 10)

than a decade or so ago, the chances are the answer would be "less." What with mergers and all, the average person is likely to believe that the number of steelmakers has actually declined in number. But the facts are just opposite! According to a survey by the American Iron and Steel Institute there are now 84 companies listed as steel ingot producers, compared with only 73 such concerns in 1939.

The current list contains more than two dozen companies not listed as ingot producers in 1939. Some of these entered the industry within the past 14 years. Others, previously only processors of steel, have installed steelmaking furnaces. Even more interesting is the fact that several of the newcomers now rank among the 25 largest producers!

At the same time, during this interval in which national steel capacity has risen 44 per cent, a significant trend has been the establishment of steelmaking plants in new areas. Steel is now being made in more states than in 1939. The number of steelmaking plants has, of course, also increased.

The steel institute comparison of the capacity lists reveal these other interesting facts about the rapidly growing industry: The largest steel producing company's share of the national capacity declined from 35.3 per cent in 1939 to 31.0 per cent as of Jan. 1, 1953. The 11 largest companies in 1939 — those capable of making more than one million tons of steel annually — increased their combined capacity about 40 per cent during the 14-year interval, but in the same period the capacity of all other companies making steel has grown nearly 66 per cent!

A comparison of the combined capacity of 23 smaller companies which were in business in both 1939 and 1953 — each company having less than 100,000 tons' annual capacity in 1939 — shows that group has increased its combined capacity about 51 per cent during the 14-year interval. The group's combined capacity was around 670,000 tons in 1939.

• ***Semantics, Labor Style*** — Businessmen who concern themselves with labor matters must now have quite a collection of picturesque words in their vocabularies. So declares Commerce Clearing House of Chicago on the basis of its latest edition of the "Dictionary of Labor Law Terms," which lists a host of words and expressions that have edged into labor negotiations and government labor rulings.

Among the 1,000 words and phrases listed in the dictionary are: "fettler," a worker who puts things in order and makes minor repairs: "pirating," the practice of luring workers from one job to another with higher pay in a tight labor market; and "bull-cook," a housekeeper in a lumber camp who does the heavy work for the cook.

"Zeal strike," a very recent term, is described as a slowdown in which workers, tongue in cheek, simply obey all the laws and rules applying to their work. By this technique, first used last year in France by Parisian taxi drivers, city traffic was hopelessly snarled.

"Invasion," another new labor term, acquired a specialized meaning for labor law in the coal industry, where it was used to describe the mass descent of union members on non-union mines. "Danbury injunction" was recently coined by the labor press to describe a violently anti-union court action. The reference is to a case in Danbury, Conn., in 1908, in which the court ordered workers' homes and savings seized to satisfy a $234,000 judgment in their employer's favor. And just last year, Commerce Clearing House adds, it was the august Supreme Court that used the slang expression "gadgets" in one of its decisions!

- ***Employe Stock Plans*** — Only 68 formal plans for selling stock to workers were found in a survey of American business just completed by the National Industrial Conference Board. The study revealed that of the 68, only 28 are presently active, while 30 are inactive and 10 have been discontinued.

The board found two principal types of stock ownership plans under which the employer provides stock and helps the employe financially in completing his purchase. The most common type is the true stock purchase plan where an employe makes a commitment to buy a certain number of shares at a given price, and immediately begins regular contributions toward payment.

The second type is the stock option. Under this plan the individual is offered a definite amount of stock at a specified price, but he is usually granted an extended period in which to take up the offer. He is under no obligation to purchase the securities unless it is to his advantage. This type has been encouraged by a change in the Internal Revenue Code, which gives the employe a tax advantage if the plan complies with certain conditions.

Of the two types (totaling 47 plans, active and inactive), the board found the stock purchase plan to be by far the most popular, occurring in 42 organizations as against only 5 stock option plans presently in force.

The study revealed that all but two of the 47 plans reviewed provide for the sale of common or capital stock. The major source of stock sold to employes is from the authorized but unissued shares (26 out of 47 companies). The proportion of stock reserved for sale to employes compared to total outstanding shares ranges from 0.7 per cent to 15.2 per cent, but in over half the plans reserving stock (20 out of 35), the amount allocated to employes is between one and four per cent of total outstanding shares.

The conference board pointed out that the supply of stock for sale to employes is usually quite limited, with the result that most companies do not sell stock to employes on a continuing basis. Only one offer has been made in 19 companies; in 12 concerns, the stock is offered to employes at relatively infrequent intervals. Sixteen are on an installment or continuing basis.

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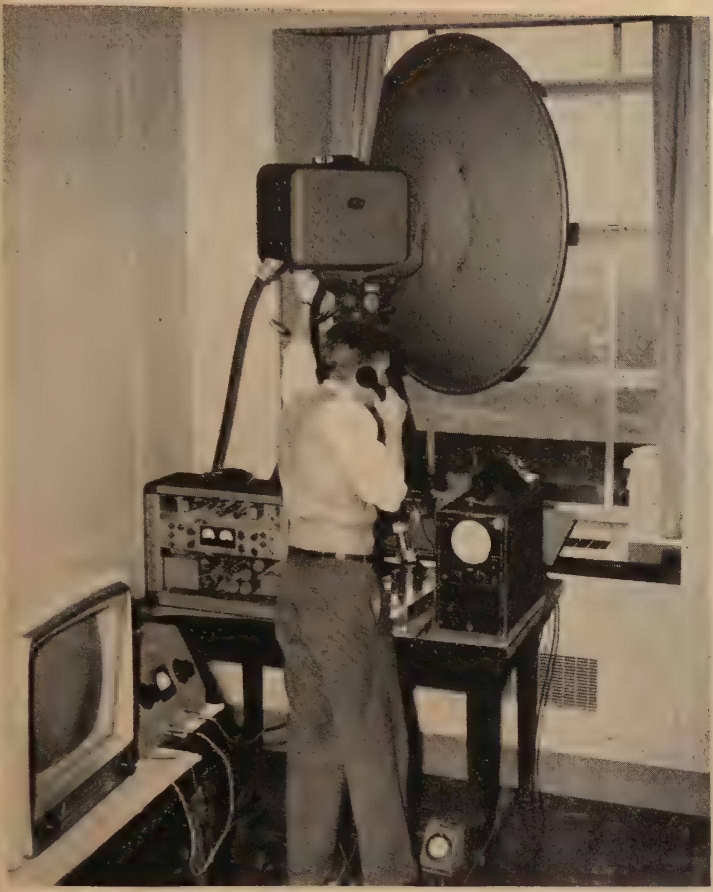
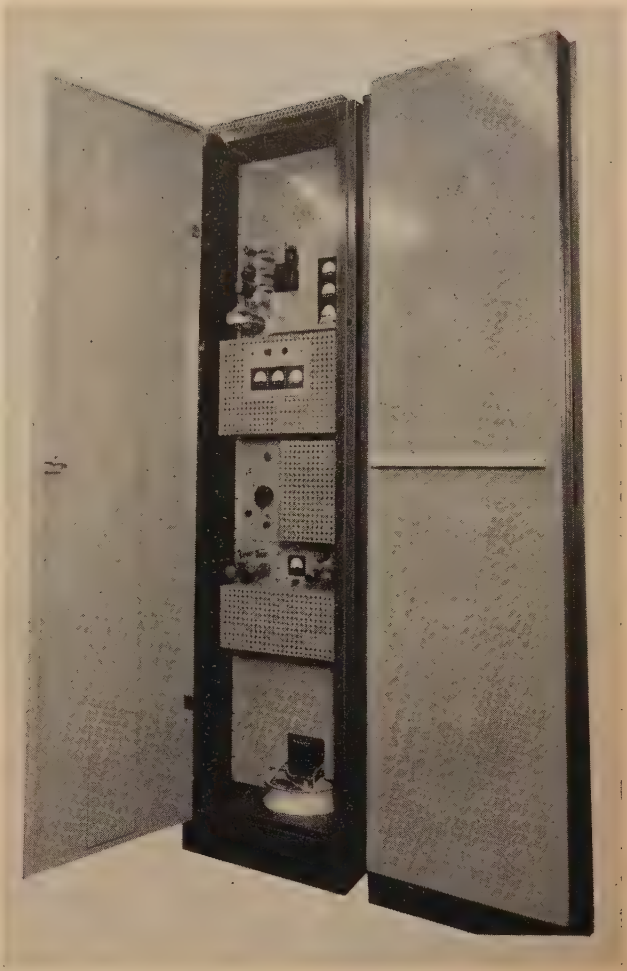
THE TV CAMERA THAT

Two new TV transmitting units now promise to send television cameras almost anywhere for on-the-spot coverage of news events, sports and special hookups.

EVER since television's probing eye has begun covering news events, the industry has been hoping for equipment that would enable portable cameras to get to fires and other news breaks in a matter of minutes. Now the Raytheon Manufacturing Company of Waltham, Mass., believes it has just that equipment in two new TV microwave units that make the television camera more independent of studio facilities than ever before.

The "Microlink" is the world's most portable, and the "Magnalink," the world's most powerful TV microwave equipment, designed for picking up picture and sound simultaneously in remote places and shooting it back to the studio for telecasting—all without the use of wires. Raytheon calls the "Microlink" the nearest thing to a vest-pocket TV broadcasting station. Light enough for one man to carry, it permits the television camera to roam at will through city streets, ball parks, or points even more remote, bringing audiences "on-the-spot" reporting with





Sketch (facing page) depicts a typical application of Microlink in quick coverage of fire. Operator (above) "zeroes in" studio parabola on opposite unit 40 miles away. (Top-right) A Magnalink transmitting unit.

GOES ANYWHERE — ALMOST!

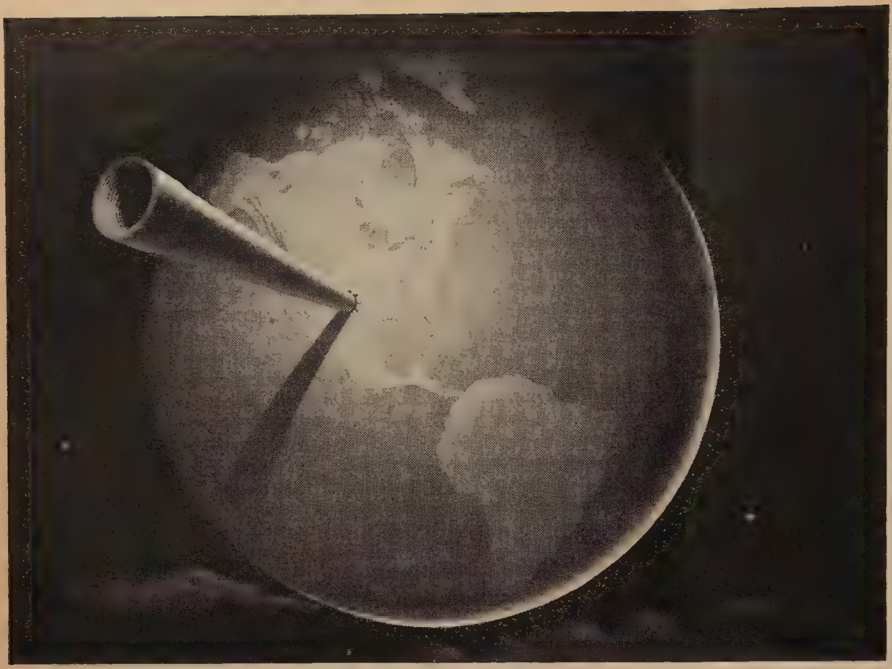
a flexibility and ease never before obtainable.

The sister unit, called the "Magnalink," is a powerful microwave relay which has already been used to transmit the first recording of an atom bomb explosion in Arizona. Because of its extra high power, the unit, according to Raytheon, can transmit over distances in excess of 100 miles in a single hop when the terrain is favorable.

Previously, when a TV camera operated in the field, it was necessary to have separate provisions for the video and audio signals. Although microwave equipment already exists for the transmission of the picture signal, the sound is more commonly sent back to the studio over leased telephone lines or, if microwave equipment is used, the audio is separate from the equipment handling the picture portion of the program.

Raytheon's devices are the first to handle pictures and sound simultaneously on the same waveband. The picture and the sound, arriving as a single signal, are "unscrambled" or separated electronically by the receiving end of the equipment, and are then sent out on the proper wave lengths for reception by home TV receivers. This systems gives the TV camera, according to Raytheon, "its first truly portable eyes and ears."

In transmitting sports events, say from a ball park, the cameras and microphones trained on the players are wired directly to what looks like a suitcase, located on the top rim of the stadium, with its attached parabola. On the studio roof, up to 25 miles away, the receiving parabola faces directly toward the one at the field. The field parabola acts with microwaves just as a search light reflector acts with light rays: it focuses the combined picture-and-sound signal into a beam which is directed to the receiving equipment. The receiver separates the audio from the video signal, and these signals are then broadcast by regular transmitters.



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Reinforced Plastics

(Continued from page 17)

greater dimensional stability, and a greater overall versatility.

The manufacture of a reinforced plastic product usually starts with the saturation of the reinforcing material with a liquid or viscous resin. The two components are mixed in various proportions and then molded or laminated by a variety of processes and with various types of dies, presses or other equipment. Reinforcement may be in the form of chopped fibers, thin, porous mat, or woven fabric.

Highly Resistant

The result is a finished product of exceptionally high strength, low weight, remarkable impact resistance and dimensional stability. Finished goods also have a high degree of resistance to weathering and rot and to deteriorating influences of fresh or salt water, chemicals, acids, oils and solvents.

Applications of these properties are numerous. The container industry, for example, uses reinforced plastics in manufacturing tote trays, boxes and other containers for handling such things as small parts and mortar, and in making tanks ranging in size from small table containers to huge 1,000 gallon, trailer-truck units and towering storage tanks for chemicals, acids, oils, plating solutions, photo developers and solvents.

American Cyanamid Company says its new line of plastic mortar pans are stronger than steel, and that the plastic pans have these added advantages over conventional pans: left-over mortar is easily removed because reinforced plastic has a high degree of resiliency; the pans won't rust, corrode, sag or dent; they retain their shape far better than metal, and, being lightweight, they are easier to carry on precarious scaffolding.

Non-rusting plastic pipe is also being used to move petroleum products, fresh and salt water and other corrosive liquids. The electrical equipment manufacturing industry has developed a number of applications for reinforced plastic, having found that the material is a good electrical insulator with high me-

(Continued on page 45)

Industrial Developments

. . . in the Chicago Area

INVESTMENTS in industrial plants in the Chicago area totaled $7,642,000 in April compared with $16,989,000 in April, 1952. The total investments for the first four months of 1953 amounted to $52,452,000 compared with $56,811,000 in the same period of 1952. These figures include expenditures for the construction of new industrial plants, expansion of existing buildings, and the acquisition of land and buildings for industrial purposes.

• ***Taylor Forge and Pipe Works,*** 4735 W. 14th street, is constructing the second building at its new plant in Gary. The new structure will contain 63,000 square feet of floor area. Shaw-Metz and Dolia, architects and engineers.

• ***Superior Match Company,*** 7530 S. Greenwood avenue, has acquired a ten acre site bordered by 103rd street, 105th street, Corliss and Drexel avenues on which they will erect a 180,000 square foot plant. The company manufactures advertising book matches.

• ***Bert Mills Corporation,*** Lombard, manufacturer of a hot coffee vending machine, is erecting a factory with 47,000 square feet of floor area near the DuPage County Airport in Wayne Township.

• ***National Video Corporation,*** 4300 W. 47th street, is constructing a 50,000 square foot addition to its plant. National Video manufactures television tubes and accessories. A. Epstein and Sons, Inc., engineers.

• ***Dearborn Chemical Company*** has started construction of a chemical plant south of Lake Zurich. The first unit contains approximately 35,000 square feet of floor area and will be the beginning of a long range building program. The plant is located on a 90 acre site. The first unit will be devoted to the manufacture of dry powdered products for water treatment and cleansers.

• ***C. H. Masland and Company,*** carpet manufacturer, is erecting a 44,000 square foot building at 3831 W. 44th street. A. Epstein and Sons, Inc., engineers.

• ***G. Felsenthal and Sons,*** 4110 W. Grand avenue, manufacturer of plastic products, has acquired the building at 3500 N. Kedzie avenue. The one-story building contains 55,000 square feet of floor area. Bennett and Kahnweiler, brokers.

• ***D. L. Clark Company,*** Pittsburgh, Pa., candy manufacturer, has acquired a 32,000 square foot plant in Evanston for the production of confectionery products. J. J. Harrington and Company, brokers.

• ***Scholle Chemical Corporation,*** 6643 N. Ridge avenue, is erecting a 23,000 square foot building near the city of North Lake. The company produces resin solutions, bulk chemicals and industrial solvents.

• ***Rickard Circular Folding Company,*** 221 East Cullerton street, has purchased the 52,000 square foot building at 525 N. Ada street. J. J. Harrington and Company, brokers.

• ***W. F. L. Drum Company,*** 1728 N. Damen avenue, is erecting a 10,000 square foot addition to its plant.

• ***Hazel-Atlas Glass Company,*** Wheeling W. Va., has acquired a one-story warehouse containing 44,000 square feet of floor area at Rockdale, near Joliet. The company is

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now erecting a glass plant in Will county and the warehouse unit will operate in conjunction with that plant. J. J. Harrington and Company, brokers.

• ***Stephen F. Whitman and Son,*** Inc., is making an addition to its warehouse at 4415 S. Kildare avenue. The company produces boxed candy. A. Epstein and Son, Inc., engineers.

• ***Roth Manufacturing Company,*** subsidiary of Vapor Heating Corporation, now located at 1600 S. Kilbourn avenue, is erecting a $2 million factory and office building at 6400 Howard street, Niles.

• ***Stock Yard Packing Company,*** packers of meat for restaurants, is building a plant at 340 N. Oakley which will contain 27,000 square feet of floor area. A. Epstein and Sons, Inc., engineers.

• ***Consolidated Cosmetics,*** 30 W. Hubbard street, has acquired the building at 3258 N. Milwaukee avenue.

• ***Grigsby, Allison Company, Inc.,*** Arlington Heights, manufacturer of radio and television parts, is adding 12,000 square feet of floor area to its plant.

• ***Chicago Saw Works,*** 5040 Wentworth avenue, is making an addition to its plant of approximately 10,000 square feet of floor area.

• ***Englund Forge Company,*** Franklin Park, is erecting a 6,000 square foot structure in Bensenville for additional production area.

• ***Dole Refrigerating Company,*** 5910 N. Pulaski road, is adding approximately 8,000 square feet of floor area.

• ***Chicago Screw Company,*** Bellwood, is erecting an addition to its plant which will contain approximately 11,000 square feet of floor area. The company produces screw machine products. George Sollitt, general contractor.

• ***Joliet Mattress Company,*** Joliet, is adding floor space to its plant.

• ***National Baking Company,*** 2610 S. Calumet avenue, is making a 3,000 square foot addition to its warehouse.

• ***Couplings Company, Inc.,*** 55 E. 18th street, has acquired the building at 2205 W. Roosevelt road. The one-story structure contains 6,000 square feet of floor area. The company makes brass fittings for automotive and home use.

• ***Hyland Electrical Supply Company*** is now operating in its $500,000 newly-remodeled building at 623 W. Monroe street. The structure, a landmark in Chicago known for many years as the home of the Railway Express Agency, has been completely renovated and two new sections added. It has 85,000 square feet of space on two floors and a basement, a 50-car parking lot, a six-truck loading dock, and automatic passenger and freight elevators. The wholesaling firm handles a full line of electrical supplies for industrial and residential use. They are a full line apparatus distributor for Westinghouse Electric Corporation, and also distribute Westinghouse lamps, radios and appliance specialties.

Soviet Progress

(Continued from page 21)

ple, is both extensive and intensive. The Russians built up the handful of technical institutes of Czarist Russia into 890 seats of learning with an enrollment of 1,400,000. The Russians are using the intensive European-type education methods, and have adopted the cooperative education system (part-school and part-industry) now being used at a few American universities. Actual work experience is combined with classroom theory.

The Communists realized that it would take them years to get a technical force adequate to operate their growing industries. So they began to import the technical knowledge — both in the form of foreign personnel and foreign equipment.

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sians hired thousands of U. S. and European engineers to supervise new Soviet plants and to train native workers. Upon these foundations the Russians built their great chemical, machinery and armaments industries which made it possible for them with our help to hold back the Germans in World War II.

After the war the Soviets persuaded many German technicians to come over to their side. They also "inherited" highly-industrialized East Germany with all its equipment and trained technicans. With this added help the Soviets are now reaching the goals set in their latest five-year plan.

Furthermore, in Russia scientific knowledge is channeled into practical progress wherever and whenever possible. The Soviet attitude to science became evident as far back as 1926 when Stalin visited a conference devoted to the problem of animal husbandry. When the head of a well-known agricultural institute reported on its research in the crossing of various wild and domestic animals, Stalin exploded:

"This leads nowhere I think. You are carried away by exotics. What we need is that the institute should serve production."

This attitude, set by the late dictator, will no doubt be followed by Malenkov. The pattern has been set.

Scientific Shortcuts?

Our scientists know that if basic or fundamental research is discouraged, applied research cannot be carried out. To get fruit, you must first plant the seed. But U. S. investigators feel that the Russians are racing against time and want to get all practical benefits as early as possible, hoping to get basic research from reading up on it in European and American scientific journals, and through espionage where necessary. The Russian reasoning is: "Why put our men to work on basic research when we can get the findings easily from our enemies."

But this doesn't mean that they are neglecting basic research completely. It merely holds a secondary place. Our scientists, who had evaluated Soviet progress say the Reds are keeping up with us in physics, chemistry and mathematics. Research in higher mathematics today occupies a prominent place in Russia, and is surpassed only by research done in the U. S. The Russians are particularly strong in applied mathematics, which had been practically neglected as a field of research by our leading mathematicians.

The emphasis on the translation of science into practical projects is showing results. The outside world got a fairly accurate estimate of Russia's position in science, technology and industry during the 19th Congress of the Communist Party held in Moscow last October. Most of the Soviet top political leaders and production chiefs presented facts and figures about production. Western economists who analyzed the figures feel the Russians weren't lying.

The statements presented show, for example, that Russia and her satellites (except Red China) now produce half the electric power produced by the United States. In 1952 Russia is estimated to have produced 90 per cent as much steel as Great Britain, France and West Germany combined, and 70 per cent as much coal.

By 1955 the Russian people were promised 40 per cent more con-

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sumer goods. Malenkov, the new Soviet dictator, said that the 1952 output of shoes would be 20 per cent above 1940. Observers feel these consumer figures may not be reached because the Russians aren't building enough light industry plants. The Soviets are still concentrating on heavy-industry plants, chiefly for producing more capital goods.

Big Building Plans

The Soviets make no little plans. This is apparent even in the physical structures — their buildings and factories. For example, there is no U. S. educational institution that has the sweep and height of the new Moscow University. The "building" is actually a series of connected structures, some rising 37 stories, and occupying a ten-block area. The main block of buildings is almost two miles in circumference. The university will accommodate 10,200 students and provide living quarters for 6,000. More than 22,000 construction men, supervised by Red Army engineers, worked in double and triple shifts to complete it in two years.

Soviet science and technology is geared to a series of "great construction projects." These are to be the foundation of the new Russia's bid for world industrial supremacy. Some of these projects have been the result of more than 20 years of planning. Many of them are located in the territory behind the Ural Mountains.

These projects include giant afforestation and irrigation schemes and great dams with hydroelectric power stations. Afforestation of vast areas began in 1948. In 1950 the Soviet government embarked on the hydroelectric and irrigation projects with the object of providing new power and irrigation to an area equal to one-third of the world's present irrigated land.

Five major hydroelectric projects included in the program are to have a total capacity of 4.25 million kilowatts and an annual production of 22 million kilowatt hours. Two of the stations will exceed our own Grand Coulee units. The Soviets' Kuibyshev station will produce two million kilowatts; the Stalingrad station 1.7 million kilowatts. As part of the plan, eight giant reservoirs and 44,000 water basins are to be built by 1957.

Probably the most notable project in Asiatic Russia is the Turkmenian Canal. Following an old river bed for 683 miles, the canal will link Krasnovodsk on the Caspian Sea with the inland Aral Sea. This canal has been a Russian dream since the early 18th Century.

By 1957 the Soviets hope to have the main canal and 746 miles of branches completed. The canal will irrigate all of Turkmenia, a region northeast of Asia Minor, which 6,000 years ago supported a large civilization resembling that existing in South Ukraine today. The river which sustained the area gradually dried up and the land became desert.

In 1951 the Soviets sent parties into the area to set up camps to house and feed 300 scientists and to lay out some irrigation farms to support life during the construction of the canal.

Although the more dramatic projects appear to be in Asia, there are major construction undertakings all over Russia. Under the new regime, their number is expected to grow. Malenkov is an engineer by profession. He may choose to make a name for himself by building up the country, whereas Stalin made his mark as a "defender" of the nation during World War II.

Party Bureaucrat

We know Malenkov came up through the party bureaucracy (and was believed to have been chosen a Stalin successor as early as 1942), but what we did not know until our experts began to dig into his background, is that his power has extended to Soviet industry, which is apparently his lifework.

Malenkov is a "machine" that fits into the giant machine comprising the Soviet industry. Observers point out that he is an incredibly hard worker, sometimes laboring around the clock except for a fleeting moment spent on a daybed. This is the man who now has charge not only of the most powerful government in the world, but the makings of the most powerful industrial empire the world may yet see.

Experts are not agreed whether he is more apt to start another war. But there is no doubt that he will continue Russia's efforts to build up its industry, whether for peace or war, and that science and technology will help build it.

Transportation and Traffic

THE railroads on March 27 filed a petition requesting the Interstate Commerce Commission to eliminate without hearing the February 28, 1954, expiration date of the increases in freight rates authorized last year in Ex Parte No. 175, Increased Freight Rates and Charges, 1951. The petition also asks authority to make the increases a part of the basic rates rather than as a surcharge on total freight charges. The petition points out that the railroads' operating results and financial position "show that the need for the increases is as great or, indeed, greater now than at the time of the decision of April 11, 1952, and that without those increases the railroads would be in a perilous situation." The carriers' petition adds: "It is of obvious importance to the railroads, to commerce and to the national defense that the expiration date and the resulting uncertainty which now attaches to the rate increases be eliminated now instead of waiting until the date is hard upon us. Railroads, like other industries and indeed the government, necessarily operate on budgets prepared in advance and planning for the year 1954 must be initiated and consummated well in advance of the beginning of that year. This planning embraces programs of capital improvements, maintenance programs, financial matters, and many other things. It is of special importance at this time with relation to capital improvements."

• ***Saturdays Excluded in Computing Demurrage:*** The Interstate Commerce Commission has suspended its Service Order No. 856-B which requires railroads to include Saturdays in computing demurrage charges on railroad freight cars. The suspension became effective at 7:00 a.m., April 16, 1953, and will remain in effect until 11:59 p.m., May 31, 1953. During the period of suspension Saturdays as well as Sundays will be considered as free days in computing demurrage charges. The commission also suspended Service Order No. 865, which imposes penalty demurrage charges for detention of railroad freight cars, on all cars except flats. A previous amendment suspended the order on all cars except gondolas and flats. The latest amendment became effective April 16, 1953, and will expire June 30, 1953.

• ***Supreme Court Upholds Non-Compensatory Rail Rates:*** In an opinion handed down on March 16, the Supreme Court of the United States affirmed the federal district court for the eastern Missouri district in its dismissal of the complaint by the appellant railroads to set aside an order of the commission prescribing maximum carload rates on certain kinds of fresh vegetables from origins in Texas to points in other states. The railroads contended that the rates were confiscatory and therefore violative of the Due Process Clause of the Constitution. The Supreme Court opinion, written by Justice Black, concludes: "so long as rates as a whole afford railroads just compensation for their over-all services to the public the Due Process Clause should not be considered as a bar to the fixing of non-compensatory rates for carrying some commodities when the public interest is thereby served." The dissenting opinion by Justice Douglas in which Chief Justice Vinson concurred said that the record offered no clue giving justification for the commission "forcing the carriers to haul the traffic at less than cost." "Can a confiscatory rate be a 'reasonable' rate under the statutory and constitutional system within

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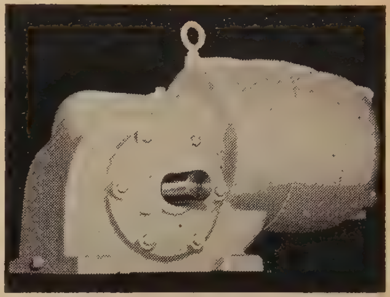

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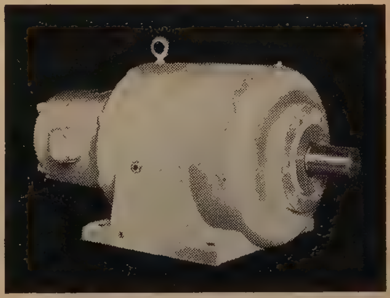

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which the commission operates?", Justice Douglas asked in his dissent. He further states, "It is incredible to me that Congress used 'reasonable' in such an odd and unusual sense."

• ***I.C.C. Adds Hearing Sites on Express*** Rate Increase: On the request of numerous interests on the Pacific Coast and in Texas, the Interstate Commerce Commission has announced that hearings in Ex Parte No. 185, Increased Express Rates and Charges, 1953, will be held in San Francisco, California and Dallas, Texas, in addition to Chicago, Illinois, and Washington, D. C. The Chicago hearing will be held May 4, 1953, in the Congress Hotel as originally scheduled, but the Washington, D. C., hearing has been postponed from May 18, 1953, to May 25, 1953. The commission's notice states that it has received a number of letters dealing with the merits of petitioner's proposal. "Under the law," the commission said, "these letters cannot be considered in the disposition of this proceeding. It is believed that parties not desiring or unable to be present at the oral hearings will find the verified statement method described in the special rules a convenient and inexpensive way of presenting their evidence. Such verified statements will receive the same careful consideration in the disposition of this proceeding as evidence presented orally." The proceeding involves the January 30, 1953, petition of the Railway Express Agency for increases in express rates and charges.

• ***Hearings on $1.50 Surcharge*** to Be Continued: Further hearings in I. & S. M.-4462, et al., proceedings involving the $1.50 motor carrier surcharge on shipments under 5,000 pounds in Central States Territory, were held April 7, 8 and 9 in Washington. These hearings will be resumed on June 16 for rebuttal evidence of carrier respondents. With the filing of briefs the issuance of a proposed report of the examiner, the filing of exceptions and oral argument, it is likely to be some time before a decision can be expected in this proceeding.

• ***Hearings Set on Class Rates to*** Mountain-Pacific Territory: Hearings have been announced on a joint docket proposal to establish a new scale of railroad class rates to apply in connection with Uniform Freight Classification ratings between all points in Mountain-Pacific territory, on the one hand, and all points east thereof in Docket No. 28300 territory, on the other. Hearings were held at Salt Lake City, Utah, Butte, Montana, Spokane and Seattle, Washington, starting on April 21. Starting on May 4 at San Francisco, Calif., hearings will be continued at Los Angeles, Calif., Phoenix, Ariz., Denver, Colo., and Chicago, Ill. The Chicago hearings will begin May 18. The proposed rates are to apply only on class rated traffic under Uniform Classification No. 1. They are not to alternate with commodity rates or classification exceptions, which will continue to apply, even though higher than the proposed class rates. A copy of the proposal may be secured from M. F. Edbrooke, chairman of the Trans-Continental Freight Bureau, Union Station, Chicago 6, Ill.

• ***Rail Workers Get Three Cents*** Hourly "Escalator Clause" Wage Cut: A three cents an hour reduction in wages of railroad employes became effective April 1 under a so-called "escalator clause" adjustment. The labor contracts between the railroads and the unions provide for an increase or reduction in wages at the rate of one cent for each point change in the consumers' price index figure determined by the Labor Department's, Bureau of Labor Statistics. Previous quarterly salary adjustments based on the cost-of-living index have been as follows: January 1, 1951, one cent an hour increase; April 1, 1951, nine cents an hour increase; July 1, 1951, one cent an hour increase; October 1, 1951, no change; January 1, 1952, four cents an hour increase; April 1, 1952, one cent an hour reduction; July 1, 1952, two cents an hour increase; October 1, 1952; two cents an hour increase; and January 1, 1953, one cent an hour reduction. Railroad workers in March were awarded a four cent an hour "productivity" wage increase, retroactive to December 1, 1952.

• ***Hearing on Forwarder - Motor*** Carrier Contracts Reset: The commission has cancelled the hearing in MC-C-1394, Forwarder-Motor Carrier Contracts, assigned for April

7 in Washington. The matter has een reassigned for hearing on June , at the commission in Washington,). C., before Examiner Lawton. 'his proceeding is an investigation nstituted by the commission into ontracts between motor carriers nd freight forwarders covering the ransportation of freight forwarder raffic by motor carriers under Section 409 of the Interstate Commerce ct.

Here, There and Everywhere

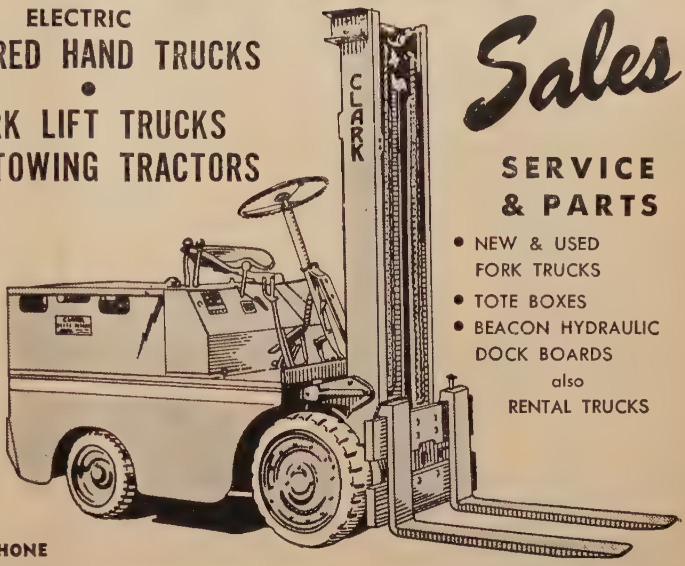
(Continued from page 8)

icles now drop into a special compartment.

• *Virus Research Lab* — Highly azardous and infectious diseases re being studied at close range in new virus research laboratory recently completed in Detroit by 'arke, Davis and Company. Experiments in the new lab involve olio, "Q" fever, the common cold, mumps, measles and other highly nfectious diseases which are difficult to conduct in ordinary laboratories. Other unusual diseases to be tudied are Japanese "B" encephalitis (inflammation of the brain), equine encephalomyelitis (combined nflammation of the brain and the pinal cord) and Russian Spring nd Summer Disease (a tick-borne rain fever).

• *Three Thousandth Jet* — Republican Aviation Corporation, the free world's biggest producer of jet aircraft, recently delivered the 3,000th -84 Thunderjet fighter-bomber to the air force. This is a production ecord for a single type jet.

• *Simulated Lightning* — A device that makes a simulated bolt of ightning "stand still" so its effects on electric power lines and equipment can be studied has been developed for experimental use by Westinghouse Electric engineers. Called a "synchronograph," the instrument weighs only about 75 pounds and costs but a few hundred dollars, compared with $200,000 or more needed to construct a room-sized, high voltage surge generator which actually hurls man-made lightning bolts at electrical equipment to determine how much it can "take."



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Automatic Tweezer

For folks who have to handle tiny, hard to reach, highly polished or hot items, there's a new pick-up tweezer on the market that has a number of uses. It looks much like a fountain pen, but when you depress the top plunger three hooked, spring steel fingers extend from the bottom tip and flare out. Releasing the plunger causes them to withdraw towards the tip and close together, say, around a tiny nut or bolt. The stainless steel instrument is distributed by Win Sales Company, P.O. Box 257, Forest Hills, N. Y.

Another Soil Conditioner

A synthetic soil conditioner, said to help control rain and wind erosion on construction sites, levees, rights-of-way and similar applications, has been introduced by the Organic Chemicals Division of Monsanto Chemical Company, St. Louis, Mo. Called "Bondite," the conditioner is designed to stabilize aggregates on the soil surface to hold seed and soil in place until vegetative cover crops germinate and become established. According to tests in many states, the conditioner is ordinarily effective at the rate of one pound per 100 square feet.

Civilian Defense Radio

A "personal" portable radio with the new civilian defense emergency bands especially marked on the tuning dial has been introduced by the Admiral Corporation, Chicago 47, Ill. The radio weighs only 3¾ pounds and comes in ebony, maroon, green or gray.

Image Amplifier

A new X-ray image amplifier, said to produce images 800 to 1,200 times brighter than those obtained with conventional fluoroscope, will soon be placed on the market by North American Philips Company, Inc., Mount Vernon, N. Y. When X-raying the body, intensities must be held down so that tissues are not damaged. This forces the radiologist to work with very weak images on the fluoroscope screen. However, the new X-ray image amplifier intensifies these weak images about 1000 times.

Magnetic Tool Rack

A tool rack that magnetically holds large and small tools in full view and within convenient reach has been introduced by the Miami Magnet Company, 3240 N.W. 27th Ave., Miami, Fla. The unit requires no electricity, will never weaken, according to the manufacturer, and comes in two sizes — a 36-inch model and a 24-inch model.

Gas Industrial Truck

What is described as the first gas-powered industrial truck with electric transmission has been introduced by the Automatic Transportation Company, 149 W. 87th St., Chicago 20, Ill. The unit, called the "Dynamotive," has an infinite step transmission with no mechanical connections from engine to drive unit, thus eliminating transmission gears, and the need for hydraulic torque converters or overdrive mechanisms.

Grinding Machine

A German-developed "Turbo-Mill" that utilizes all known principles of grinding and pulverizing (compression, impact, attrition, cutting and shredding) and in addition uses a powerful ricochet action will soon be distributed in the United States by the A. E. Poulsen and Company of Los Angeles, Calif. The unique mill is said to grind and pulverize a wider range of materials more efficiently, faster and at lower cost than has been heretofore possible. Even waste materials as diverse as old shoes and unusable waste lumber are said to be recoverable for useful purposes with the grinder-pulverizer. Old shoes, for example, become a compressed synthetic leather of remarkable strength and wearing quality, and scrap lumber becomes pressed wood highly suitable for many purposes, according to the U. S. distributor. The original unit was created by Ludwig Pallmann of Zweibreucken, Germany.

Plastic Paper Basket

A waste paper basket made of rustproof, non-breakable polyethylene has been placed on the market by Gordon Mundy Co., 494 Arthur St., Schenectady, N. Y. The basket, which can also be used as a liner for step-on garbage cans, is 9½-inches in diameter, 10¼-inches high, and comes in blue, yellow or white.

New Mercury Lamp

A new, high-powered electric lamp, said to flood busy shopping streets with 2½ times more white light without increasing power costs and described as outliving an incandescent street lamp by 300 per cent, will soon go into production at Westinghouse Electric Corporation's Lamp Division, Bloomfield, N. J. The lamp is a 700-watt fluorescent-mercury bulb that gives off a brilliant blue-green light, and, in addition, invisible ultra-violet rays which excite a phosphor coating on an outer bulb, making it fluoresce red.

New Calculator

"The first radically new hand adding-subtracting machine introduced in years" is the claim made by the Clary Multiplier Corporation for its new hand-operated model that adds, subtracts and multiplies. The new model is full size and designed for heavy duty, but weighs only 16 pounds. It is being produced at the company's main plant in San Gabriel, Calif.

Obesity Among Executives

(Continued from page 15)

weight. About 15 million people in the United States are overweight, and the number of seriously obese adults is five million or more.

What is the cause of overweight?

Drs. Armstrong, Dublin, Wheatley and Marks of New York point out that most experts agree that simple overeating is usually the basic cause. We are well aware that endocrine glands play their part in the development of obesity, but such conditions are rare. Thus, it is probably safe to say that overeating accounts for overweight in at least 95 per cent of the cases.

One point should be stressed in this connection because it involves particular strain for many executives. One well-known doctor who has given special attention to this problem emphasizes that executives suffer from what he calls "indiscreet social events." Many an executive, he explains, is slowly extinguished as an active and valued member of the community by a succession of cocktail parties or long hours at night clubs or official luncheons with heavy menus. In part, the executive's obesity may well be considered an occupational disease.

Well, how can you reduce your weight?

Many obese people look for a quick and easy way to get rid of excess pounds. However, there is no easy solution. It is known that only a minority of overweight people who start out on a weight-reducing program persist long enough to reap the maximum benefits of their endeavor.

The reducing diet is, of course, of paramount importance in losing excess pounds. Each overweight person requires his special diet because each taste and each need are different. The diet must, as Dr. Clifford J. Barborka of the department of medicine of Northwestern University emphasized recently, follow these principles:

It must be (1) low in calories, (2) relatively high in protein, (3) moderately low in carbohydrate, (4) very low in fat, (5) sufficient in bulk to satisfy hunger, and (6) adequate in vitamins and minerals.

Typical foods allowed are: Skimmed milk, and buttermilk; eggs; lean meat; meats low in fat content such as the lean portion of chicken, liver, fish, other than salmon, shrimp, crab meat; fruit with not too much sugar; vegetables with not too much sugar; and clear soup.

As Dr. Dublin and his associates point out, the successful management of the obese patient is a time-consuming affair.

What about those marvelous drugs

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you read about in the ads? Physicians who have had extensive experience in their use lean to the opinion that they have a relatively minor and temporary value in the great majority of cases.

At any rate, reduction of weight requires the application of the best that modern medicine has to offer, including new knowledge of nutrition and psychology. But the price is well worth the efforts: Reducing weight means efficiency, health and life for the executive just in that period of his life when success has been gained or is near.

Let's Stop Wasting Engineering Talent

(Continued from page 14)

employing these very products ourselves, we've been able to add substantially to our productivity.

Now, consider the integration of technical functions. There are tons of books covering technological change, economics, inventions and the art of reducing ideas to practice. The events which take place between the time we begin to think about appropriating dollars for technical work until we have a product often extend over several years. This process has been broken down by various authors into significant stages depending upon the particular story he wishes to tell. But for my purpose I would like to adopt the stages of (1) research, (2) development, (3) design engineering, (4) production engineering, (5) application engineering, and (6) patent engineering.

These are the basic stages and functions underlying the evolution of a product. But, artificially partition one from the other, and a high degree of expensive inefficiency can result. Fully integrate these various engineering functions, and you have the broadest economy of technical manpower!

Now this may sound rather simple, but today as our industrial organizations become larger and the product and services become more complex, the proper correlation of these functions becomes more difficult.

Furthermore, an organization does not have to get very big or the situation very complex for human beings to start asserting their individualities. Deeply ingrained in the work habits of technical employees is the desire to "work on his own." He has been trained to be self reliant and, as a rule, will have difficulty in understanding the need for teamwork. Indeed, the more talented engineers are often the most individualistic and cause greater need for proper organization control.

In looking at present day industrial organization we find a very heterogeneous pattern of responsibilities for the six principal technical functions. And it seems that looseness increases each time one of the six functions grows independent of the others.

Consider just one area in particular where costs are of prime importance: the relationship between research and design and production. Constitutionally, research and development people are continually falling into beartraps that the production people inadvertently set for them. One of two results follows. Either they develop a product which cannot be built except at an intolerably high cost, or they come up with a product shorn of any novelty or advance design. Avoiding either of these pitfalls poses a real challenge. It poses a challenge both in conserving manpower doing the job as well as in developing a product having the proper cost and quality. The trick is, of course, to control these things without suppressing initiative and inventiveness.

Proper Procedures

But such integration can be achieved. And here is how it is done. The functional responsibilities embodied in an organization must be clean cut. From managers down, those responsible for the primary functions of engineering should meet their opposite numbers on an equal footing and resolve their problems. Furthermore, proper procedures must be established setting forth the responsibilities for the functions and the methods by which these responsibilities are daily discharged. The communications machinery to handle recommendations, approvals and so on, must also be set forth.

From this process, two packages of engineering data are delivered. One to the manufacturing departent includes all product and tool esign drawings, specifications, and peration and time study data. The her to the sales department inudes technical data, bulletins and rvice instructions on which the les and service programs are based. lthough exceedingly simplified, at is the basic pattern of integraon.

Finally, there is the application control principles as a means of creasing engineering efficiency. here has been a good deal of coment, to which I must plead guilty contributing, on the subjects of rvomechanisms, cybernetics, autoation and the like. In carrying out ese theories, you can get quite inolved with mathematical analysis nd synthesis. I am, however, quite rtain that in organization control e can realize the greatest gain ithout these complex approaches.

Therefore, I would like to make wo basic points. First, I recommend at you determine whether you ally have the control means you ould have. And, second, see hether your control system would rofit from better feedback.

Use of Indicators

We must first set up significant ndicators of the conditions we wish o control. This is measurement. For ngineering work, these indicators ay be market statistics covering oth customer and competitor, covring cost and profit by lines of roduct, and covering quality. However, we must be careful that the gnificant statistics are not buried mong a lot of other insignificant atistics.

Too many people relax once they ave set up their indicators, but this just the beginning! Next, we must stablish desired values to control nese conditions. And, finally, comlete our system so that the indicaons will properly touch off events hich will force the measurement the desired value. If we are dealng solely with people we must make somebody's job to look at the indiators. He must know what to do to orrect these indications. The sysem must be such that it keeps everastingly hammering away in a diection to bring the measurement to he desired value.

When we look at the indicators nd we don't like what we see, two inds of delays often occur. First, a delay in determining that a desired action has been taken. Second, a delay in the results from that action. When these delays occur, the effect on the executive is often serious. It can lead him, not knowing what the effect of his action has been, to under-control or over-control it.

This requires the feedback effect. Unless his indicators respond both to an initial change in a condition as well as to the result of his control action, he does not know whether the effect of his control action has been effective or not. He doesn't have a closed loop—in other words, his system is so poor, he doesn't know the results of his decisions. He does not, in fact, have an effective control system.

In a house thermostatic control system, the feedback can be simply the heat that comes from the furnace. If it is a big house with long heat delays, we can improve the control system by an artificial feedback. This produces the same effect on the thermostat that the heater eventually will, but sooner. Similarly, with long delays in an organization, you need

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some indications that an action will be taken, even before it is taken and perhaps progress reports.

There are many ways of insuring control actions and causing feedback effects. Much of this we are all doing daily and instinctively. Our control will be tight or loose depending upon the extent that we formalize the system and how well the people understand it. This, it should be emphasized, is not red tape. Red tape is an unintelligent substitute for selective controls. Nowhere are the variations in control systems so many and so complex as they are when they deal with human beings.

Control Systems

Here is a thumbnail sketch of one of our systems. We use as many local controls as we can. At the division head level, for example, we have staff assistants. They collaborate with each other in much the same manner as the division heads themselves in ironing out transient effects that never come to the attention of the division managers or the vice president.

This is analogous to your house again. If the door is continually opened and closed on a cold day, it makes the thermostat's job harder. If you put a spring on the door you will ease the thermostat's job to the extent that it will avoid the door being left unnecessarily open. The more of these local or environmental controls one can have, the better. This is just another way of saying, *the further down the line you can push responsibilities,* and have them adequately discharged, *the more efficient you will be.*

For our engineering operations, we have two sets of indicators. One set is concerned with the various lines of products we make and the other is concerned with the various industries the products are used in.

We have sections of engineering specializing in the particular product lines. The heads of these product sections have the responsibility for developing, for our weekly division head meetings, a picture of their respective product condition. This condition includes current sales activity, price-cost ratios, product quality, development or research plans, product extension plans, special programs and the like. The picture must be complete, but not detailed, and adequately covered in about 15 minutes. If more detail on any point is deemed necessary, a separate picture on that point may be presented at that meeting if time is available or at another meeting. The picture must include targets and the corrective action proposed or actually taken to reach the targets. The result of that action shows up as a feedback effect at the next meeting. By this means we get a birdseye view of what we should or should not be doing.

If these pictures are sound, they

"It isn't listed in the guide . . . maybe we'd better ask one of the guards who painted it!"

present our plans and go on de-eloping. But always from the base the last preceding picture. Thus, ontinuity is preserved. A valuable eature is the planning work re-uired to make up these pictures. This requires productive actions not nly by the section heads but by all hose who contribute to finally get-ing the product out the door in the uantity needed. Getting it out at he right cost and of the required uality. These are the things that he indicators measure.

We feel that this system intro-uces a much needed quality of “straight thinking” at technical evels. Unfortunately, this quality is ot present in engineers to the de-ree that it should be.

We seriously need to cultivate this uality. Perhaps our sophisticated pproaches to the subject have tend-d to crowd out what I might call “simple engineering husbandry.” We annot escape the fact that American ndustry needs more engineers with old fashioned horse sense” and less ancy unrealistic “ivory tower com-lexes.”

Specifically, this need arises from the fact that present day industrial perations are very complex, both technically and administratively. Their efficient and effective opera-ion does not permit managers to perate on a “one-man show” basis. t calls for a high degree of team play—and more and more delegation of responsibility. This, in turn, requires a higher degree of self-management as distinguished from technical behavior at lower levels.

Generally speaking, it is the evaluation and objective setting habits of our engineers that need to be strengthened. That is the process of realistically sorting out the significant facts and taking action upon them.

In short, I believe that what is needed is not the breeding of predestined managers but the training into individuals of the managerial qualities that may be adapted to whatever levels they occupy at any time.

We don't expect miracles. But we do feel that our system has helped reconcile business objectives and technical work. It has, we feel, provided us with a method of injecting some plain economics into a complicated technical situation. We further believe that our concept of self-management has permeated our line organization and saved engineering manpower and research and development dollars primarily because it has eliminated waste and unnecessary work.

I realize that I've offered no panacea for your engineering problems. That was not my intent. I do hope, however, that I may have awakened your imagination to the possibilities for the elimination of waste of your technical manpower—an exceedingly high-grade, expensive and scarce human resource!

Watch Reinforced Plastics

(*Continued from page 32*)

hanical strength and excellent heat and flame resistant properties. It also facilitates the passage of ultra-high-frequency electronic impulses, and offers easier repair and mainte-nance features in a number of instances. Among electrical products containing reinforced plastic are toggles, levers, instrument panel boards, printed circuits and slot wedges in motors and generators.

One volume user of reinforced plastic is the construction industry, which uses the material in structural sheet form, either flat or corrugated. One new building material, called “Alsynite” is a Fiberglas-reinforced plastic which comes in sheet form, and which may be fastened with nails, bolts, screws or mastic, cut with a power or hand saw or shears, or drilled with ordinary tools. In tests, one corrugated sheet of the material supported a 1,300 pound load. Translucent sheets of “Alsynite” are being used for screens and partitions in offices, homes, greenhouses, store fronts, canopies, Quonset building windows and skylights. Recently developed to house military personnel and equipment is a hemispherical-shaped Fiberglas-reinforced plastic portable shelter, composed of 12 interchangeable sections.

A New York company recently began marketing a new shower stall made of reinforced plastic. The unit weighs 20 pounds, compared with 300 to 400 pounds of terrazzo, and 80 pounds for steel. It is leakproof, and has a simulated basket-weave design molded into the surface to prevent

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slipping. In addition, the manufacturer says the plastic shower stall will not crack, chip, peel or rust, needs no painting, is warm to the touch of bare feet, and is less noisy under the pounding of a shower spray.

Another firm has developed a reinforced plastic bathtub, said to weigh one-fifth as much as the lightest steel bathtub in use.

Home appliance manufacturers are also finding use for reinforced plastics. One washing machine manufacturer has developed a spiral-bladed agitator, consisting of only two parts. Another firm has developed a reinforced plastic tub for an automatic washer, consisting of five molded parts instead of the 17 metal parts formerly used.

Use in Refrigerators

Several refrigerator manufacturers use reinforced plastic for gussets and strike plates connecting inner and outer compartments where the material's low thermal conductivity cuts down heat entry. Still others use the material for corrosion-resistant drip pans. Another recent commercial development is an entire refrigerator door liner in one piece. The possibility of making the entire inside refrigerator lining of reinforced plastic is also being explored. In the radio and television industry, several manufacturers are making cabinets of reinforced plastic.

The automobile industry, which has long used plastics, is developing reinforced plastic auto bodies. In announcing plans to build a $350,000 plant at Ashtabula, O., to build molded plastic body frames, Molded Fiberglass Company reported that it had orders for plastic bodies from several auto firms. Kaiser-Frazer Corporation has also announced that it will start mass production on a new sports car with a reinforced plastic body next July.

Exhibited by General Motors Corporation in New York City last January were a Cadillac, Buick, Oldsmobile and Chevrolet, all with reinforced plastic bodies. One auto manufacturer, to demonstrate the impact-ruggedness and easy repairability of its production body, deliberately side-swiped the automobile against a tree. The body was quickly repaired by hand-patching the dent with resin and fibrous glass, and smoothing down and painting wer until the dent was almost unnoticeable. The automobile industry is also investigating the possible use of reinforced plastics in automobile trunk liners, door panels, heater ducts, electrical parts and other components.

Several custom auto makers are now using reinforced plastic. A Pasadena, Calif., firm has introduced a sleek, low-cost sports car, with a Fiberglas-reinforced plastic body which it says combines great strength, low weight and resistance to weathering, rust and corrosion. The body is made of Laminac, a polyester resin, retails for about $500, and can be adapted to a chassis wheelbase of 75 to 85 inches. A Long Island, N. Y., firm is manufacturing a four-passenger sports car with a body molded in four reinforced plastic sections.

Air Force a Customer

One of the biggest users of reinforced plastics is the nation's armed services. The Air Force, whose needs are particularly great for high-strength, low-weight materials, is using reinforced plastic in aircraft radomes, ducting, bulkheads, self-sealing tanks, and instrument housings. And in the F-84 Thunderjet alone there are 225 reinforced plastic parts!

One of the latest military uses of reinforced plastics is in droppable fuel tanks for the Air Force. In Chicago, the Molded Products Division of Admiral Corporation is having three huge molds constructed to form such tanks in capacities of 200, 225 and 250 gallons. In addition to being more economical, the plastic auxiliary tanks will be appreciably lighter than comparable sized ones made of steel or aluminum.

The Navy has also developed a number of applications for the material in assault boats, landing craft, life boats, whaleboats and pontoons. The Navy uses glass-reinforced melamine circuit breakers as standard equipment in the power distribution systems of its submarines because their high heat and flame resistance and non-toxicity properties contribute to greater safety.

Armored vests of reinforced plastic, now being worn by our troops in Korea to repel flak and grenade fragments, have been described by one Marine Corps division commander as the "greatest lifesaver in 100 years of war."

With so many varied applications having been found for reinforced plastic in the last decade, the plastic industry is confident that it has a good product to sell. It believes its product suggests revolutionary applications in industries such as automobile, truck, farm equipment, aircraft, home appliance and furniture manufacturing, in construction and in other mass-production industries.

But the reinforced plastics industry is not out to sell its product on the basis of its unique properties alone. To further enhance the value of its product, the industry is concentrating its efforts on developing methods whereby reinforced plastics may be turned out on a mass-production basis at lower cost.

As the S.P.I. puts it, "The future range and volume of uses for reinforced plastics obviously will not be determined by the materials properties alone, but by a mixture of properties—and economics!"

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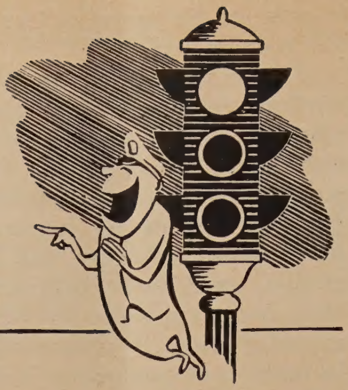


The visitor to the village was talking to the oldest inhabitant. "May I ask how old you are?" he asked of the aged one.

"I be just one hundred," came the drawled reply.

"Really? Well, do you suppose you'll see another hundred?"

"Well," said the centenarian thoughtfully, "I be stronger now than I was when I started on the first hundred."

•

A man was seated on a park bench when a little chap about five sat down beside him and started winding what appeared to be a most prized possession — a dollar watch.

"My, what a pretty watch," the man remarked. "Does it tell you the time?"

"No, sir," replied the little fellow, "you gotta look at it."

•

The proprietor of a small store which had recently been burglarized met a friend on the street.

"I was sorry to hear about the robbery," the friend said. "Did you lose much?"

The storekeeper shrugged. "Some. But it would have been a lot worse if the burglar had broken in the night before."

"Why?" the questioner asked.

"Well, you see," said the storekeeper, "just the day of the robbery I marked everything down 20 per cent."

•

A millionaire, questioning his prospective son-in-law, demanded —

"Would you love my daughter just as much if she were poor?"

"Absolutely," answered the suitor.

"Well, you're out,'" decreed the father. "I don't want any fools in this family."

•

Two men, neither very bright, were helping to build a house. One kept picking up nails, looking at them, keeping some and throwing the others away.

"Why are you throwing away so many nails?" asked his companion.

"Because they are pointed the wrong way. They have the head on the wrong end."

"Idiot, those are for the other side of the house."

•

What is that spirit that keeps a woman thinking the man she is about to marry is better than the one she just divorced?

Two men were discussing the Darwin theory of evolution one morning as they rode their train to work. As they talked a man sitting behind them pricked up his ears and finally he leaned over from his seat.

"Do you men really believe in that Darwinian theory?" he asked curtly.

"Yes," quickly retorted one of the men, "and I am inclined to go farther than Darwin did."

"What do you mean by that?" snapped the man in the seat behind.

"Well, Sir," smiled the first, "I believe that some members of our species have started on the return trip."

•

Patron: "I'll take the dollar dinner."
Waiter: "On white or rye?"

•

Customer: "I want an alarm clock that will wake father without arousing the whole family."

Clerk: "I'm sorry, we have only the ordinary kind that will awaken the entire family without disturbing father."

Junior had spilled some ink on the tabl cloth. His young sister had spilled som salad dressing. But when their father, reaching too far for a roll, upset the gravy boat the patient mother said to the young ones "It isn't quite fair to match you childre against older and more experienced competition. But congratulate your father on winning the spilling bee."

•

An old bachelor lived alone for years Finally he took a bride, but after a fev months she left him. The bachelor took i philosophically. "Anyhow," he remarked "she was always getting in the way wher I was cooking."

•

An adverse witness preceded each answe with: "I think." The distraught lawyer demanded for the third time the witness tel the court and jury "what you know and no what you think."

The witness quietly replied: "I'm not a lawyer; I can't talk without thinking."

•

A young woman returned to the villag after a run-away match and dropped in a the local newspaper office. "I suppose m elopement was the talk of the town, eh? she said to the editor.

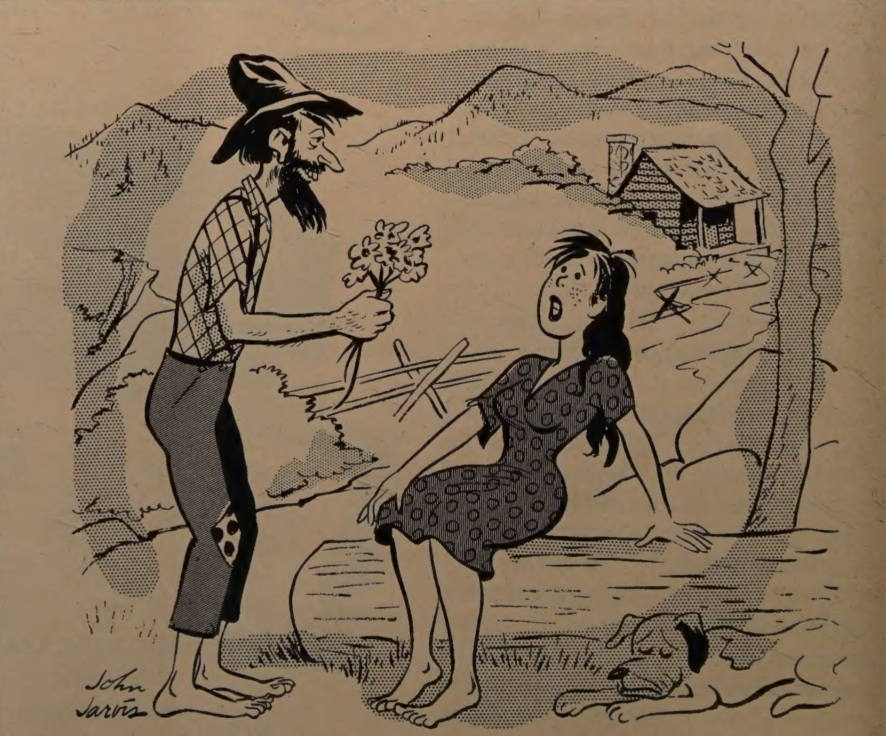
"Well, not exactly," he replied, scratchin his head, "you see, old man Higgins' do went mad that same day."

•

Mrs. Jones swept into the meeting of th Ladies' Aid society. She was in a huff an daggers were popping from her eyes as sh stormed across to Mrs. Smith.

"Did you tell Mrs. Bailly I was nothi but a gossip?" demanded Mrs. Jones.

Mrs. Smith's eyebrows raised in mild s prise. "Why, no," she answered. "I thou Mrs. Bailly knew."



"I wanna git married an' have 5 children — 3 boys an' 3 girls."